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ABSTRACT

These proceedings present 5 keynote addresses and 28 session papers focusing on creation of environments for stimulating entrepreneurial activities. The keynote addresses are "Entrepreneurial Leadership--A Performing Art" (Gordon L. Lippitt); "Innovation & Entrepreneurship at Work in a Large Company" (George F. Troy); "Thoughts Regarding Entrepreneurship Education" (Arthur Lipper, III); "Self Employment: Who Are the Entrepreneurs and How Does Government Create a Climate for These People?" (Frank S. Swain); and "Innovation: Where Is the Relish?" (Frederick Herzberg). Session papers include "Entrepreneurship and Economic Growth: Toward a New Conceptual Framework" (Carl Crego); "Small Business Dynamics, Effective Resource Utilization, and Innovation" (Thomas A. Gray); "Complexity and Disequilibrium: How Creativity, Entrepreneurship, and the Economy Come Together" (Benny Gilad); "Stimulating High Technology Innovations" (J. Davidson Frame); "An Examination of Export Attitudes and Behaviors of High Technology Manufacturers" (K. Mark Weaver); "The Technology Center Concept: Helping Businesses Start and Grow" (Loren Schultz); "Small Business Incubators: A Creative Tool for Local Development" (Jim Van Dyke); "Motivating (Guiding) Entrepreneurial (Intrapreneurial) Behavior" (Erik K. Winslow); "The Eleven Commandments: 4+3+2+1=11" (Reid J. Daitzman); "Entrepreneurial Employees--The Keys to Business Success in the Information Age" (Michael D. London); "A Longitudinal Study of the Dynamics of Small Business Growth and Development" (William C. Dunkelberg, et al.); "Characteristics of Entrepreneurs and Small Business Owner-Managers: A Review of the Literature" (George T. Solomon); "Value Profiles of Entrepreneurs" (Lloyd W. Fernald, Jr.); "Values, Organizational Size, and the Rational Model According to Peters and Waterman" (James E. Martin, et al.); "Entrepreneurship Education: Path to Creativity" (M. Catherine Ashmore); "Public Policy Affecting Entrepreneurship, Venture Capital, and Technology" (Gerald F. Feigen); "School/Small Business Partnerships: Their Development and Their Need" (Leslie P. Hitch); "Roots of Entrepreneurship--From Small Beginnings to Major Corporations" (Gordon W. Engdahl); "Warning Signals" (Brian R. Ford); "Innovation through Investment in People: The Consideration of Creative Styles" (Robert Rosenfeld); "Public and Private Creativity" (Teresa M. Amabile, Susan J. Sensabaugh); "Innovative Problem Solving and Military Leadership" (Dennis E. Coates); "Creativity Enters the Curriculum at National Defense University" (Daniel B. Chapla); "Accountable Think Time: An Executive Function" (Harold R. Mc Alindon); "New Product Screening as an Analytical Hierarchy Process" (Robert F. Dyer); "The Small Business Innovation Research Program: A New Resource for Product Development" (George I. Morning); "Venture Capital's Role in Financing Innovation for Economic Growth" (Jeffry A. Timmons); and "Strategic Planning and Entrepreneurship: What Are the Current Connections?" (Steven C. Stryker). (YLB)

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PROCEEDINGS

SECOND CREATIVITY, INNOVATION AND ENTREPRENEURSHIP SYMPOSIUM

WASHINGTON, D.C.
MARCH 20-21, 1985

KEYS TO THE FUTURE OF AMERICAN BUSINESS

EDITED BY

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U.S. SMALL BUSINESS ADMINISTRATION

&

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PREFACE

The Second Creativity, Innovation and Entrepreneurship Symposium, Keys to the Future of American Business, was held on the campus of George Washington University in March 1985. The theme of the symposium offered those in attendance an opportunity to hear from leading experts in the academic, public and private sectors who are invovled and interested in creating environments for stimulating entrepreneurial activities.

We believe these Proceedings capture the essence of the symposium's spirit and we wish to acknowledge the many contributors for their excellent papers.

Special thanks to the staff of the National Center for Research in Vocational Education, Ohio State University, for their assistance in printing the proceedings; George Washington University's School of Government and Business Administration for hosting the symposium and to Venture Magazine for promoting the symposium.

Finally, our appreciation to all the organizations whose support enabled the symposium to exist and flourish: U.S. Small Business Administration, Control Data Corporation, Bell Atlantic, National Federation of Independent Business, Arthur Young, Federal Express, and International Council for Small Business/USA Affiliate.

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U.S. Small Business
Administration

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Pennsylvania

July 1985

KEYNOTE ADDRESSES

"ENTREPRENEURIAL LEADERSHIP
- A PERFORMING ART-"

by

Gordon L. Lippitt
President, Project Associates, Inc.

ABSTRACT

An entrepreneurial leader is able to take risks, innovate, focus on the task, assume personal responsibility, and possess an economic orientation. Leadership qualities are more than being an administrator or a manager. As an art, it means orchestrating the totality of the enterprise with energy, self confidence, persistence, and learning capabilities.

Entrepreneurial leadership is a priceless commodity in a society which needs the innovativeness and contribution of small businesses. In this context, I use the word "leader" as differentiated from administrator or manager. An administrator handles the multiple responses related to many specific duties to which he or she is assigned and must confront. In addition to being an administrator, the manager coordinates and uses such resources as people, money and materials to achieve the goals of an organization. An entrepreneurial leader, while performing sometimes as both an administrator and manager, is able to release the energy of others and self to achieve goals that go beyond the prescribed and expected.

Throughout history, competent people have attempted generally to define leadership, each from a particular point of view. These quotable quotes are interesting and fun, and hardly more than partial and temporizing:

> "There go the people, and I must follow them, for I am their leader."
> Attributed to Robespierre

> "The only way to lead people is to show them a future: a leader is a dealer in hope." (1)
> Napoleon Bonaparte

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> "Now, look, I happen to know a little about leadership. I've worked with a lot of nations, for that matter, at odds with each other. And I tell you this: you do not lead by hitting people over the head. Any damn fool can do that, but it's usually called 'assault' not 'leadership'...I'll tell you what leadership is. It's persuasion - and conciliation - and education - and patience." (2)
>
> General Dwight Eisenhower

> "Coach Lombardi never takes second place when it comes to Oral Roberts or any of the rest of the great healers. He can just walk into a training room filled with injured players, and he'll say, "What the hell's wrong with you guys? There's nobody in here hurt." And the dressing room would clear immediately. And the wounded would be healed." (3)

Leadership is the worst defined, least understood personal attribute sometimes possessed by human beings. Even the conclusions of those who have done extensive research on leadership are contradictory, simplistic or ambiguous. An increasing number of practitioners and scientists are frustrated by the many ways of evaluating and comprehending leadership. Some caustic critics suggest that the term "leadership" is no longer useful. (4) This may be in part because we teach leadership and therefore think of it as an independent variable, ignoring the reality of organizational differences within different environments. (5)

In my concept of the six stages of organization progress toward maturity, I contend that different kinds of leaders (persons) and different kinds of leadership (manner and method) may be needed periodically throughout an organization's lifespan. (6) In the same vein, I have felt that the various attempts to classify persons as leaders of one type or another is not helpful-wolf, fox, craftsman, bureaucrat and gamesman are certainly colorful descriptions, but far too narrow a way to allude to one's performance within the enormous complexity that is leadership. (7)

In teaching and analyzing human behavior, we talk about four methods that can be applied in directing the activities of people:

* Force. The leader uses his or her control as a means to compel the choice of certain reactions and activities that are desired as means;

* Paternalism. The leader provides means and hopes for acceptance of his or her leadership out of loyalty and gratitude;

* Bargain. The leader may arrive at a bargain, a more or less voluntary choice, made by each party to furnish certain means in return for certain means;

- Mutual Means. The leader creates or responds to the situation in which certain activities of his or hers - and of the group and organization - if performed together, will serve as mutual means, means for each to satisfy their own (perhaps different) needs.

No one, however, is completely free to choose among these methods. To a greater or lesser extent, the method adopted is prescribed by the nature, politics, and complexities of the situation at any given moment.

Characteristics Of The Entrepreneurial Leader

The concept of entrepreneurship is a unique leadership situation. There are at least six characteristics of the entrepreneurial leaders behavior that seem relevant to the requirements of small businesses. (8)

- Risk Taking. Most experts who study entrepreneurs (those people who successfully start new business ventures or revive dying ones) believe that they are able and willing to take moderately high risks. Entrepreneurs, for example, generally invest a sizable proportion of their own equity in a new venture.

- Divergent Thinking. One of the greatest motivators for an entrepreneur is the expression, "It can't be done." Entrepreneurs circumvent traditional thinking to find new routes to old destinations. They are not necessarily enamored of creativity, but they can be obsessed with finding an answer when traditional wisdom does not yield one, and when they must find a way from here to there in order to succeed.

- Sharp Focus. The entrepreneur is generally characterized by steadfast determination narrowly and intensely expressed. Entrepreneurs are not out to save the world - but rather to achieve a clearly defined objective. Their targets are generally measurable and without ready substitute.

- Personal Responsibility. Research about successful entrepreneurs suggests that they tend to have in common what psychologists call an "internal locus of control." That is entrepreneurs believe that they are responsible and accountable for what befalls them - not God, luck, or fate.

- Economic Orientation. While experts debate whether entrepreneurs want money for its own sake or as an indicator of accomplishment, they do agree that a financial yardstick is clearly important to them. Also critical is the sense of earning the money as a consequence of actions taken.

- Learning From Experience. Many entrepreneurs have met, or at least faced, bankruptcy. Indeed, that experience is thought by their leaders and researchers to be instrumental in improving capacity such that a second or third venture is successful.

The skills required by an entrepreneurial leader are only a part of a total set of capabilities. while education and training are essential in many areas - such as communication, conflict resolution, financial management, problem-solving and systems concepts - more than these things are needed for effective leadership - which is a performing art, not a science. Among many others, perhaps, personal and professional standards, concepts, skills and values must be involved.

The men and women that seem to function best as leaders in today's organizations appear to be characterized by certain actions which tend to support the "art" rather than the "science" connotation of entrepreneurial leadership. They:

* Analyze each situation, sometimes instantly; and may appear to be inconsistent because seemingly similar situations in fact are not.

* May get into fine detail on one problem and almost totally ignore detail on the next; this is a matter of acting according to the nature of the problem, not the nature of their habits.

* Spend one-third to one-half of their time working on one or two priorities.

* Involve lots of people, listen to many different views and play with ideas; but once their mind is made up, they act quickly.

* Have an extensive network of contacts located anywhere inside or outside the organization.

* Balance their job interests with family, friends and other groups and situations to obtain useful feedback.

It might be helpful, at this point, to summarize what the research on entrepreneurship states about their nature:

- High Drive and Energy Level

- Self-Confidence

- Long Term Involvement in Work Goals (5 to 7 Years)

- Using Money as a Measure (not an end)

- Persistent at Solving Problems

- Setting Challenging and Realistic Goals

- Taking Moderate Risks

- Learning From, but not being Discouraged by, Failure

- Responding Constructively to Criticism

- Taking Initiatives and Seeking Personal Responsibility

Such a summary does not mean that all such criteria are needed, but do tend to be present in many successful entrepreneurs.

Developing Entrepreneurial Leadership

To develop leadership for new and small businesses, we need to broaden our examination beyond academic research and educational writing. Let me provide some practical guidelines for self-development, such as these: (9)

* Developing One's Self-Understanding. Research findings indicate clearly the factor of self-insight as paramount to the healthy personality and, therefore, for the effective leader. A leader, in the light of his or her inner power and influence in many situations, must understand their effect on others. It is essential for the leader to understand his or her own feelings, motivations, values, strengths, and weaknesses.

* Learning How To Get Advice. Many leaders excel at aggressively seeking information and taking charge. Entrepreneurs must learn how to communicate the need for advice and information and how to listen to other's concerns.

* Developing Diagnostic Skills. Leadership is not adequately performed when only done on the "hunch" or "flying-by-the-seat-of-our-pants" basis. Too often, leaders treat symptoms of situations instead of making an adequate diagnosis of causes. The ability to diagnose objectively the emotional and rational needs in a situation is a prime "dimension" for any leader.

* Flexibility In One's Role Relationships. The complexity of the situations in which a leader finds him or herself makes it necessary to be flexible to changing demands. Such flexibility is not to be confused with unsureness or ambivalence. The concept of role flexibility means the ability to function in the various roles needed to resolve problems and secure action in multiple situations.

* Dealing With Adversity. Leaders must learn not to over-analyze the past when they are confronted with a failure. They must quickly understand what went wrong, accept responsibility for their part of the failure and then move on.

* Coping With Change. Leaders must learn how to take on new and demanding roles, to deal with a changing organization, new technology and changing societal norms.

* Setting Life Goals. Although leaders may conduct their lives by just letting things happen, entrepreneurs must learn to make career and life decisions based on specific, incremental goals.

The search for understanding leaders and leadership probably will never end. It is imperative, however, that in this search we take stock of the new stresses and convolutions of the modern world to provide helpful guidance for those whom we call upon to provide the invaluable contribution of such a performing art for the successful small business of today and tomorrow.

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"INNOVATION & ENTREPRENEURSHIP AT WORK IN A LARGE COMPANY"

G. F. TROY, PRESIDENT
CONTROL DATA ADVISORS, INC.

GOOD AFTERNOON. IT'S ALWAYS A PLEASURE FOR ME TO SPEND TIME WITH PEOPLE WHO ARE ACTIVELY INVOLVED WITH SMALL BUSINESS AND THE PROBLEMS AND OPPORTUNITIES THAT THEY DEAL WITH EVERY DAY.

IT'S PARTICULARLY GRATIFYING TO ME PERSONALLY, AND TO CONTROL DATA, TO BE ASKED TO PARTICIPATE IN THIS SYMPOSIUM ON CREATIVITY, INNOVATION AND ENTREPRENEURSHIP--THREE TRAITS THAT SUM UP THE HISTORY OF CONTROL DATA AS WELL.

THE WORKSHOPS THAT YOU HAVE BEEN PARTICIPATING IN THIS MORNING COVERED SUBJECTS THAT ARE OF INTEREST TO ALL OF US-- PUBLIC/PRIVATE PARTNERSHIPS, SMALL BUSINESS INCUBATORS, TECHNIQUES FOR GENERATING CREATIVE ENVIRONMENTS TO MOTIVATE EMPLOYEES--ALL SUBJECTS EXTREMELY IMPORTANT TO SUCCESSFUL SMALL BUSINESS GROWTH, AND IN MANY RESPECTS TO THE GROWTH OF INDUSTRY IN THE U.S. IN TOTAL.

ONE OF THE MOST SIGNIFICANT OUTCOMES OF ALL OF THESE PROGRAMS IS THE EXPANSION OF JOB CREATION OPPORTUNITIES.

THERE IS NO CONSTITUENCY MORE IMPORTANT TO THAT THAN SMALL BUSINESS SINCE THEY ACCOUNT FOR HALF THE PRIVATE WORK FORCE.

AND DESPITE ALL OF THE WELL DOCUMENTED PROBLEMS AND FAILURE RATES, ENTREPRENEURS KEEP STARTING NEW BUSINESSES.

IN FACT, ACCORDING TO DUN & BRADSTREET, ABOUT 620,000 NEW BUSINESSES WERE STARTED IN 1983--MORE THAN TRIPLE THE NUMBER OF 20 YEARS AGO--MORE AND MORE INDIVIDUALS MEETING THE NEED FOR CREATIVITY, INNOVATION AND ENTREPRENEURSHIP.

BUT, AS ALL OF YOU KNOW, IT'S NOT ENOUGH TO JUST HAVE INDIVIDUALS OR SMALL GROUPS GOING OUT ON THEIR OWN TO SEARCH OUT NEW BUSINESS OPPORTUNITIES. IT'S NOT ENOUGH TO SAY THAT WE FOSTER AN ENTREPRENEURIAL ENVIRONMENT.

WHAT HAS TO BE DONE IS TO WORK HARD AT CREATING THAT ENVIRONMENT, TO HAVE AN INFRASTRUCTURE THAT SUPPORTS CREATIVITY AND JOB CREATION--NOT AN EASY TASK, BY THE WAY.

IT REQUIRES COOPERATION -- COOPERATION BETWEEN THE PUBLIC SECTOR AND THE PRIVATE SECTOR, BETWEEN BIG BUSINESS AND SMALL BUSINESS, BETWEEN FOR-PROFIT AND NOT-FOR-PROFIT ORGANIZATIONS-- COOPERATION THAT, QUITE FRANKLY, IS NOT EASY TO ACHIEVE.

THERE ARE A LOT OF PEOPLE WHO STILL DON'T SEE THE NEED FOR IT--WHO ARE ONLY CONCERNED WITH THE SHORT-TERM ASPECTS OF PROFIT AND LOSS RATHER THAN THE LONG-TERM GAINS THAT CAN BE ACCOMPLISHED BY WORKING TOGETHER TO ESTABLISH THE INFRASTRUCTURE NECESSARY TO SUPPORT SMALL BUSINESS GROWTH.

MOST OF YOU ARE AWARE, I BELIEVE, OF MY OWN COMPANY'S PHILOSOPHY TOWARDS COOPERATION AND COOPERATIVE VENTURES.

WE ACTIVELY SEEK THEM OUT -- RECOGNIZING THAT IT MAKES THE MOST SENSE FOR OUR OWN GROWTH, AS WELL AS THE GROWTH OF U.S. INDUSTRY IN AN INCREASINGLY COMPLEX WORLD ENVIRONMENT.

A LOT OF WHAT WE HAVE DONE HAS RECEIVED CONSIDERABLE PUBLICITY SUCH AS MCC, OUR R&D JOINT VENTURE STARTED TWO YEARS AGO, AND NOW MAKING SIGNIFICANT PROGRESS, AND CITY VENTURE, A CONSORTIUM OF TEN COMPANIES AND TWO CHURCHES

THAT FOCUSES ON JOB CREATION IN CITIES THROUGH THE FORMATION OF SMALL BUSINESSES.

HAL THEISTE, WHO HEADS UP CITY VENTURE, ADDRESSED THIS GROUP LAST YEAR AND DISCUSSED THEIR MANY AND VARIED ACTIVITIES.

BUT THERE ARE OTHER LESS WELL PUBLICIZED COOPERATIVE VENTURES WITH OTHER ORGANIZATIONS THAT ARE BEING PURSUED AT CONTROL DATA THAT ALSO REFLECT THE THEME OF THIS CONFERENCE--CREATIVITY, INNOVATION AND ENTREPRENEURSHIP.

- WORKING WITH THE PUBLIC AND PRIVATE SECTORS IN MINNESOTA, A MINNESOTA COOPERATION OFFICE, SUPPORTED BY OVER 50 PUBLIC AND PRIVATE ORGANIZATIONS, HAS BEEN ESTABLISHED TO HELP START-UP FIRMS WITH BUSINESS AND FINANCIAL PLANNING.

- A MINNESOTA SEED CAPITAL FUND HAS BEEN ESTABLISHED TO PROVIDE VENTURE CAPITAL FUNDS FOR START-UP COMPANIES.

- THE MINNESOTA BUSINESS PARTNERSHIP HAS ALSO BEEN ORGANIZED, INVOLVING 60 MINNESOTA COMPANIES. ONE OF ITS PROGRAMS HAS 30 LARGER FIRMS EACH SPONSORING THE START-UP OF A NEW COMPANY.

- CONTROL DATA HAS ALSO WORKED CLOSELY WITH THE STATE OF MINNESOTA IN THE SPONSORSHIP OF THE SMALL BUSINESS INNOVATION RESEARCH PROGRAM IN MINNESOTA.

THESE ARE JUST A FEW EXAMPLES OF PROGRAMS THAT FALL INTO OUR OVERALL "NETWORK FOR JOB CREATION"--FOSTERING PARTNERSHIPS AND JOINT EFFORTS THAT ARE SO VITAL TO THE SUCCESS OF SMALL BUSINESS GROWTH.

IT'S IMPORTANT FOR PROGRAMS LIKE THESE TO CONTINUE, GROW AND EXPAND.

THERE ARE LIMITS TO WHAT COMPANIES CAN DO BY THEMSELVES AND AS HAS BEEN LEARNED, THERE ARE ALSO LIMITATIONS AS TO WHAT GOVERNMENT CAN DO.

BUT TOGETHER WE CAN BE A POWERFUL AND POSITIVE INFLUENCE IN THE NATION'S ECONOMIC WELL BEING, AND THAT'S A MESSAGE

THAT SHOULD BE SPREAD AND HEEDED IN THIS TIME OF BUDGET DEFICITS, CUTS AND FISCAL CONSTRAINTS.

BUT COOPERATION PER SE IS NOT ENOUGH. THERE HAS TO BE AN INVESTMENT BY LARGE COMPANIES THEMSELVES, INDEPENDENT OF COOPERATIVE VENTURES, TO EFFECT PROGRAMS THAT NURTURE THE SUCCESS OF SMALL BUSINESS PROGRAMS.

AND I'M NOT TALKING ABOUT PHILANTHROPIC OR HAND-OUT TYPE PROGRAMS. WHAT HAS TO BE DONE IS TO VIEW SMALL BUSINESS AS A TARGET OF OPPORTUNITY--A MARKET NICHE, IF YOU WILL--THAT CAN BE FOCUSED ON OR ADDRESSED AS A MARKET OPPORTUNITY.

MY COMPANY IS DOING JUST THAT. AND I CAN TELL YOU IT'S A LONG-TERM STRATEGY--PERSISTENT EFFORT IS REQUIRED, AND THERE IS CONSIDERABLE STUMBLING ALONG THE WAY, BUT WE ARE PROVING THAT MARKET OPPORTUNITY IS THERE.

THROUGH OUR WORLDTECH DIVISION, UNUSED OR UNDER-UTILIZED TECHNOLOGIES ARE BEING TRANSFERRED TO SMALLER COMPANIES THAT WILL USE THEM.

THE BUSINESS AND TECHNOLOGY CENTERS, OF WHICH THERE ARE NOW 12, HOUSE OVER 400 SMALL BUSINESSES AND PROVIDE

OFFICE AND OTHER SERVICES AS NEEDED. THE TENANTS IN THESE BTC'S HAVE ACCOUNTED FOR OVER 1800 NEW JOBS.

CONTROL DATA HAS ALSO INVESTED OVER $8.5 MILLION IN TWO INVESTMENT COMPANIES, AN SBIC AND A MINORITY ENTERPRISE SBIC, AND HAS ALSO FUNDED THROUGH OTHER CHANNELS OVER 200 SMALL BUSINESSES.

SO, WE ARE NOT JUST COMMITTED, WE ARE INVOLVED.

KIND OF LIKE THE DIFFERENCE BETWEEN THE CHICKEN WHO LAYS THE EGG AND THE PIG WHO PROVIDES THE BACON. THE CHICKEN...IT'S COMMITTED -- BUT THE PIG...IT'S INVOLVED.

AND SPEAKING OF INVOLVEMENT, I'D LIKE TO GIVE YOU ONE EXAMPLE OF THAT.

IT'S A COMPANY THAT, UNTIL RECENTLY, I HEADED UP FOR CONTROL DATA. IT'S NAME IS CONTROL DATA BUSINESS ADVISORS, AND ITS OBJECTIVE WHEN IT WAS FORMED IN 1979, IN THE WORDS OF CONTROL DATA'S CHAIRMAN, BILL NORRIS, WAS "TO HELP SOLVE THE CRITICAL PLANNING AND OPERATING PROBLEMS THAT TOO OFTEN CAUSE FAILURE TO THE SMALLER AND NEWER BUSINESSES THAT ARE VITAL TO INNOVATION AND JOB CREATION."

TO FULFILL THIS OBJECTIVE, WE SET OUT WITH HIGH HOPES, NEW IDEAS AND LIMITED EXPERIENCE.

IN THE BEGINNING, THE MAIN THING WAS TO GET THE OPERATION GOING. TO DO THAT, WE TRIED A NUMBER OF DIFFERENT APPROACHES, MORE OR LESS SIMULTANEOUSLY:

- WE USED RETIRED EXECUTIVES TO PROVIDE SERVICES.
- WE EMPLOYED SPECIALISTS FROM CONTROL DATA AND FROM OTHER ORGANIZATIONS TO WORK ON SPECIFIC PROJECTS.
- WE DEVELOPED A FULL-TIME STAFF OF CONSULTANTS.
- AND WE DEVELOPED A NUMBER OF MANUALS AND GUIDES TO REDUCE THE LABOR INTENSIVENESS, AND THEREFORE THE COST OF OUR ASSISTANCE.

AS WE WENT THROUGH THE EARLY STAGES OF OUR DEVELOPMENT, WE LEARNED TWO IMPORTANT THINGS.

FIRST, THE ONLY THING OUR CLIENTS HAVE IN COMMON IS THEIR DIVERSITY. SECONDLY, THEIR PROBLEMS COULD BE GENERALLY CLASSIFIED INTO FOUR MAJOR CATEGORIES:

PERSONNEL, OPERATIONS, FINANCE, AND MARKETING--WITH MARKETING, OR THE LACK OF IT, BEING THE KEY FACTOR IN SUCCESS OR FAILURE.

SO WE CONCENTRATED OUR EFFORTS TO BRING TOGETHER A PROCESS THAT ADDRESSED THESE BASIC ISSUES.

AND WE HAD SOME EARLY SUCCESSES, ASSISTING SMALL COMPANIES THAT RANGED FROM A FAMILY THAT MADE HORSE BLANKETS TO A BARGE CLEANING BUSINESS, TO AN ENTREPRENEUR WHO STRUCTURED A BUSINESS AROUND BURNING WASTE WOOD PRODUCTS TO HEAT PUBLIC BUILDINGS.

IT WAS FUN AND GRATIFYING TO HELP SOLVE SOME MANAGEMENT PROBLEMS THAT HAD BEEN THREATENING THE GROWTH AND SOMETIMES THE SURVIVAL OF SMALL FIRMS, AND IT WAS EXCITING TO WATCH OUR PEOPLE WORK WITH THEIR CLIENTS.

FROM THE CLIENTS' POINT OF VIEW, OUR EARLY APPROACHES WERE VALUABLE. THEY RECEIVED HELP THAT THEY PROBABLY WOULD NOT HAVE BEEN ABLE TO GET OTHERWISE.

FROM OUR BUSINESS PERSPECTIVE, SOME OF THE APPROACHES WORKED AND SOME WERE NOT REPLICABLE ENOUGH TO MAKE IT A PART OF A VIABLE BUSINESS OPERATION.

WE LEARNED THAT TO SUCCEED AS A BUSINESS, WE HAD TO DO WHAT OUR ENTREPRENEURIAL CLIENTS HAD BEEN DOING--EXPERIMENT, CHANGE, AND ADAPT.

AND OUT OF THIS CAME A SPIRIT THAT IS ENTREPRENEURIAL IN ITS OWN RIGHT--A WILLINGNESS TO EXPERIMENT AND TAKE RISKS. THIS SPIRIT WAS EVIDENCED IN THE FIRM IN A NUMBER OF WAYS IN PRODUCT DEVELOPMENT, IN MARKETING STRATEGIES, AND IN OUR PEOPLE.

IN PRODUCT DEVELOPMENT, WE CAME TO REALIZE THAT WHILE SMALL BUSINESSES ARE UNIQUE, THEIR PROBLEMS ARE NOT.

SMALL BUSINESSES ARE LIKE PEOPLE: UNIQUE IN THEIR INDIVIDUALITY, ALIKE IN THEIR AILMENTS.

WE ALSO REALIZED THAT ONE-TIME, SINGLE-ISSUE CONSULTING WAS NOT GOING TO HELP ENTREPRENEURS THRIVE IN THE LONG RUN.

WHAT WAS NEEDED WAS AN ONGOING, SYSTEMATIC PROGRAM THAT OFFERED THE NUTS-AND-BOLTS ASSISTANCE THEY NEEDED--IN MARKETING, PRODUCTION, FINANCE, MANAGEMENT, AND PERSONNEL--AND THAT SMALL BUSINESSES COULD AFFORD.

THE RESULT WAS OUR BUSINESS DEVELOPMENT PROGRAM, A STRUCTURED PROGRAM OF ASSISTANCE THAT OFFERS SPECIFIC KNOW-HOW IN HUNDREDS OF COMMON SITUATIONS--

EVERYTHING FROM WRITING JOB DESCRIPTIONS TO ORGANIZING SALES FORCES--TO HELP ENTREPRENEURS GAIN CONTROL OF THEIR ENTERPRISES--SO _THEY_ RUN THE BUSINESS, NOT THE OTHER WAY AROUND--TO MAKE THE BUSINESS SERVE THEIR PERSONAL GOALS.

BUT WE HAVE ALSO LEARNED THAT WE CANNOT CEASE INNOVATING AND IMPROVING OUR SERVICES.

FOR EXAMPLE, THE WORKSHOPS, SEMINARS, DOCUMENTATION, AND PROCESSES OF THE BUSINESS DEVELOPMENT PROGRAM HAVE BEEN REVISED AND ADDED TO ALMOST CONTINUOUSLY OVER THE PAST TWO YEARS.

IN FACT, IN OUR PRODUCT DEVELOPMENT WE HAVE ADOPTED THE SLOGAN OF "TRY, CHANGE, AND EXTEND" TO DESCRIBE OUR APPROACH.

TRY MEANS A WILLINGNESS TO TRY SOMETHING NEW WITHOUT WAITING FOR ALL THE REFINEMENTS TO BE IN PLACE.

CHANGE REFERS TO ADAPTING OUR PROGRAMS TO FIT DIFFERING SITUATIONS AND CLIENT NEEDS.

AND EXTEND MEANS SIMPLY TO APPLY WHAT WORKS TO OTHER CLIENTS AND TO ENHANCE IT.

THIS IS A TRULY ENTREPRENEURIAL MODEL FOR PRODUCT DEVELOPMENT. IT DIFFERS FROM TRADITIONAL MODELS IN PUTTING MARKETING, MANAGERS AND DELIVERY PEOPLE IN THE MIDDLE OF PRODUCT DEVELOPMENT, RATHER THAN HAVING IT DONE BY A SEPARATE GROUP.

THIS MODEL ALSO PUTS ALL OF BUSINESS ADVISORS IN AN ENVIRONMENT OF CONTINUOUS CHANGE AND URGENCY. THINGS ARE NEVER THE SAME FOR VERY LONG, AND THAT TAKES SOME GETTING USED TO.

OUR EXPERIMENTING AND INNOVATING DOES NOT CONCERN JUST PRODUCT DEVELOPMENT. WE HAVE ALSO DONE SOME UNCONVENTIONAL THINGS IN MARKETING.

TRADITIONALLY, CONSULTING FIRMS HAVE WORKED HARD TO PROJECT A DIGNIFIED, PROFESSIONAL IMAGE. ACCORDINGLY, THEY EMULATED LAWYERS AND DOCTORS IN RELYING ON REFERRALS AND AVOIDING AGGRESSIVE MARKETING TECHNIQUES.

BUT WE DIDN'T WANT TO PROJECT THAT SORT OF IMAGE, AND WE NEEDED TO BUILD THE BUSINESS FAST.

SO WE HAVE DONE A FAIR AMOUNT OF MEDIA ADVERTISING AND A TREMENDOUS AMOUNT OF DIRECT MAIL. THE RESULTS HAVE BEEN MIXED, BUT WE HAVE BEEN RATHER INNOVATIVE.

BUT WHERE WE HAVE BEEN PARTICULARLY INNOVATIVE IS IN OUR APPROACH TO THE USE OF PEOPLE.

FOR ONE THING WE RELY HEAVILY ON OUR TALENT POOL OF 2,000 EXPERTS WHO ARE ON CALL FOR PARTICULAR ASSIGNMENTS. THEY BROADEN OUR CAPABILITIES WHILE WE KEEP OUR FULL-TIME STAFF AND RELATED OVERHEAD COSTS DOWN.

IN 1983 WE TRIED ANOTHER EXPERIMENT, MOVING 150 PERSONNEL PEOPLE AND THE STRATEGIC PLANNING DEPARTMENT FROM THE CORPORATE STAFF TO BUSINESS ADVISORS.

THEY CONTINUE TO SERVE INTERNAL NEEDS IN TRAINING AND DEVELOPMENT, COMPENSATION AND BENEFITS, ORGANIZATIONAL RESEARCH, AND STRATEGIC PLANNING, BUT THEY ALSO PROVIDE THEIR SERVICES TO OTHER COMPANIES, SMALL AND LARGE.

IN OTHER WORDS, THESE STAFF PEOPLE ARE ALSO NOW CONSULTANTS, AND THEY HAVE IN MOST CASES ADAPTED QUITE WELL TO A VERY DIFFERENT ENVIRONMENT--ONE THAT IS LESS STRUCTURED AND MORE DEMANDING.

THEY HAVE HAD TO BE MORE ENTREPRENEURIAL THEMSELVES, MARKETING THEIR SERVICES AND DEALING WITH CLIENTS AND COMPETITORS.

WE THINK THIS NEW ENVIRONMENT IS A GOOD ONE FOR THESE NEW CONSULTANTS THEMSELVES, FOR BUSINESS ADVISORS, AND FOR CONTROL DATA. IT NOT ONLY REDUCES THE COMPANY'S OVERHEAD EXPENSES, BUT KEEPS US ABREAST OF WHAT'S HAPPENING IN THE PERSONNEL AND PLANNING AREAS IN OTHER COMPANIES. THIS OUTWARD ORIENTATION SHOULD HELP US IMPROVE OUR INTERNAL OPERATIONS.

IT'S ALSO BEEN FUN TO WATCH PEOPLE GROW IN THIS ENVIRONMENT WHERE THEY ARE STRETCHED.

SOME PERSONNEL PEOPLE HAVE HELPED ORGANIZE SMALL BUSINESSES; OTHERS HAVE SHOWN A REAL TALENT FOR MARKETING.

ONE COMPENSATION MANAGER WHO HAD LABORED COMPETENTLY BUT ANONYMOUSLY IN A STAFF ROLE HAS SHOWN HERSELF TO BE FIRST

RATE IN WORKING WITH PROSPECTS AND CLIENTS. SHE WAS INSTRUMENTAL IN LANDING OUR BIGGEST CONTRACT TO DATE--A JOB ANALYSIS PROJECT FOR OVER 100 CITIES AND OTHER LOCAL GOVERNMENT UNITS.

SO, WE ARE A LARGE COMPANY SERVING THE NEEDS OF SMALL BUSINESS -- PURSUING SMALL BUSINESS AS A TARGET OF OPPORTUNITY, WHILE AT THE SAME TIME APPLYING THE SAME BASIC CONCEPTS OF CREATIVITY, INNOVATION AND ENTREPRENEURSHIP TO OUR OWN BUSINESS ENDEAVORS.

AND AS I CONSTANTLY REMIND MY PEOPLE, THE REAL FUN IN BEING INVOLVED IN A LARGE COMPANY IS WHEN YOU GET THE OPPORTUNITY TO RUN IT WITH ALL THE RISKS AND REWARDS OF A SMALL COMPANY ENVIRONMENT--TO INSTILL A CULTURE WHERE RISK BECOMES ITS OWN REWARD AND EVERYONE HAS THE OPPORTUNITY TO FAIL.

SO COOPERATION DOESN'T BEGIN OR END WITH COOPERATIVE PROGRAMS. COOPERATION CAN BE THE KEY TO CHANGING OUR ENVIRONMENT, LEARNING FROM ONE ANOTHER, AND EXPLOITING NEW OPORTUNITIES FOR SUCCESS.

"THOUGHTS REGARDING ENTREPRENEURSHIP EDUCATION"

ARTHUR LIPPER III, CHAIRMAN OF THE BOARD

VENTURE MAGAZINE

RECENTLY, I'VE BEEN STARTING SOME OF MY TALKS, ESPECIALLY THOSE TO YOUNG PEOPLE, WITH THE CLICHE OF THERE BEING TWO KINDS OF PEOPLE IN THE WORLD...THOSE OWNING MONEY AND THOSE WISHING TO USE IT FOR THE PURPOSE OF CREATING WEALTH. PLEASE NOTE THE CONCEPTS OF OWNING VERSUS RENTING OR USING MONEY. ALSO THE IMPLICATION OF, IN SOME OTHER WAY, GAINING CONTROL OVER THE FINANCIAL RESOURCE. AND FINALLY THAT OF WEALTH CREATION AS OPPOSED TO ONLY PERSONAL UTILIZATION OF MONEY FOR SOCIETALLY NON-PRODUCTIVE ACQUISITION OF GOODS AND SERVICES.

THE CREATION OF WEALTH, AS A BY-PRODUCT OF ENTREPRENEURIAL SUCCESS, ENRICHES FAR MORE PEOPLE THAN IS THE CASE WHEN A FORTUNATE OR SKILLFUL STOCK OR COMMODITY MARKET SPECULATOR MAKES A LOT OF MONEY. TO, TOO MANY PEOPLE, THE ELEMENTS OF ENTREPRENEURIAL AND SPECULATIVE RISK TAKING AND A SUCCESSFUL RESULT APPEAR TO BE THE SAME. AMONG THE MORE OBVIOUS DIFFERENCES ARE THAT THE SPECULATOR HAS THE SUPREME LUXURY OF BEING ABLE TO CHANGE HIS MIND AT ANY TIME, CLOSE OUT HIS POSITIONS AND, PERHAPS EVEN, REVERSE THE POSITIONS AND BET ON THE OPPOSITE OF THAT WHICH HE ORIGINALLY BELIEVED. THE HALLMARK OF MANY GREAT SPECULATORS IS JUST SUCH EGO DENYING

FLEXIBILITY. THE SINGLE GREATEST CAUSE FOR LOSS IN STOCK AND COMMODITY MARKET SPECULATION IS THE INDIVIDUAL'S EGO NEED FOR VINDICATION OF THE INITIAL JUDGEMENT. IT'S INTERESTING TO ME THAT IN THE CASE OF THE ENTREPRENEURS SUCH A SIMILAR NEED IS SEEN AS BEING CONSTRUCTIVE IN THAT WE RECOGNIZE MOTIVATION, DETERMINATION AND PERSISTANCE AS BEING USUSALLY FOUND IN THE SUCCESSFUL ENTREPRENUER. ALSO, OF COURSE, THE SUCCESSFUL SPECULATOR GETS RICH OR RICHER AND, TO ME, THAT'S VERY DIFFERENT THAN THE WEALTH OF JOBS, CAREERS, SERVICES AND PRODUCT INNOVATION WHICH ARE CREATED BY, AND ACCOMPANY, THE SUCCESS OF THE ENTREPRENEUR. WOULDN'T IT BE WONDERFULLY CONSTRUCTIVE FOR ENTREPRENEURS SPECIFICALLY, AND OUR COUNTRY GENERALLY, IF THE VIEW JUST EXPRESSED WAS REFLECTIVE OF THE POPULAR ATTITUDE.

THE CREATION OR INFLUENCING OF ATTITUDES IS, I BELIEVE, EVERY BIT AS IMPORTANT A PART OF EDUCATION AS INFORMATION TRANSFER. AFTER ALL, I BELIEVE WE WILL LIVE TO SEE IN HUMANS, AS IS NOW BEING DONE IN ANIMALS, IMPLANTATION OF MEMORY MODULES, AND THAT EVENT WILL SURELY FOCUS EDUCATION ON THE DEVELOPMENT OF COGNITIVE SKILLS.

HOWEVER, BEFORE SKILL IMPARTATION OR ASSEMBLY COMES PREJUDICE, WHICH WHEN THE TERM'S REAL MEANING IS ACCEPTED AS BEING THAT OF A PRE-JUDGEMENT, BIAS, OR ATTITUDE, MOST WILL AGREE WE ARE ALL PREJUDICED IN SOME MANNER.

OUR JOB THEREFORE, AND I SAY "OUR" BECAUSE VENTURE MAGAZINE'S JOB IS THE SAME AS MANY OF YOURS, NAMELY, PROFIT EDUCATION. WE DELIVER PROFIT EDUCATION THROUGH THE MEDIUM OF INFORMING OUR PRESENT AND FUTURE BUSINESS OWNERS AND EMPLOYING READERS OF

EVENTS, TRENDS AND DEVELOPMENTS WHICH MAY HELP THEM EARN MORE MONEY, OR SOMETIMES, AND OF EQUAL IMPORTANCE, LOSE LESS. IN PART, OUR JOB IS ALSO TO CREATE POSITIVE ATTITUDES AS REGARDING COMMERCIAL CREATIVITY. THE PROBLEM IS THAT MOST OF US DEALING WITH THOSE STUDENTS INVOLVED IN ENTREPRENEURSHIP EDUCATION GET TO THE STUDENT TOO LATE, OR WHEN THERE IS NO NEED FOR OUR ATTITUDINAL AFFECTING SERVICES. WE ARE THE DEDICATED PREACHING TO THE CONVINCED, OR AS AT LEAST FAVORABLY INCLINED. WE MISS IMPACTING THOSE FUTURE LOAN OFFICERS, DEPARTMENT MANAGERS, INVESTORS, INVESTMENT MANAGERS AND BUREAUCRATS WHO TYPICALLY ARE NON-ASSISTING, IF NOT THWARTING, TO THOSE WE ARE SPECIFICALLY TRYING TO HELP.

THE ANSWER IS SIMPLE. WE MUST GET TO THE STUDENTS EARLIER IN THEIR MATURATION AND ATTITUDINAL FORMATION CYCLE. WE HAVE TO COMPETE WITH THE EFFECTIVE POUNDING OF TELEVISION ON THE MINDS OF THE YOUNG. THE "J. R. EWINGS" AND OTHER NEGATIVE PORTRAYALS OF BUSINESSMEN AND ENTREPRENEURS SHOULD NOT BE PERMITTED TO BE THE ACCEPTED IMAGERY OF FREE ENTERPRISE.

RECENTLY, LAST JANUARY 4TH TO BE EXACT, THERE APPEARED HIDDEN ON THE FRONT PAGE OF THE WALL STREET JOURNAL, IF NOT "THE" ANSWER THEN "MY" ANSWER TO THE PROBLEM OF HOW TO POSITIVELY IMPACT YOUNG MINDS, STARTING AT KINDERGARTEN, AS TO THE WORKINGS OF OUR FREE ENTERPRISE SYSTEM WHICH IS SO REQUIRING OF EVER INCREASING ENTREPRENEURIAL ACTIVITY. THE ANSWER WAS, AND I TRULY BELIEVE IS, DR. MARILYN KOURILSKY'S "KINDER AND MINI-ECONOMY PROGRAMS".

Dr. Kourilsky, The Director of Teacher Education at the UCLA Graduate School of Education, has developed an "experienced based" or debriefing method of instruction used in conjunction with her participative model economy simulation. More than 100,000 teachers in 38 states have been trained in this approach and program. In this program the students role play various occupations and functions in a society. The results are that some play it safe, some are aggressive in their economic pursuits, some fail and some gain wealth and power. Those wishing additional information regarding Dr. Kourilsky's program, please contact me. For those of you here who know me it will come as no surprise that I have some current thoughts, and possible plans, for expanding the public awareness of, and participation in, programs based upon Dr. Kourilsky's demonstrably effective Free Enterprise Economic Education program.

On another subject, I Recently I had the priviledge of spending time with an outstandingly successful entrepreneur, Stanton Avery. Mr. Avery founded Avery International in the depression some 50 odd years ago. This year the Company expects to experience revenues of more than one billion dollars. Mr. Avery believes that freedom is the single most important consideration in spurring entrepreneurial activity. His concept of freedom includes freedom from fear of failure. He started his business when he had but $200 and therefore not much to fear losing. I agree and believe this to be one of the reasons for the traditional entrepreneurial success of so many of our immigrants and also of those finding themselves unexpectedly unemployed.

One final thought. Wouldn't it be logical for entrepreneurship

EDUCATION TO INCLUDE A COURSE ON "WINDING DOWN OR CLOSING A BUSINESS.. WHEN AND HOW"? I BELIEVE THAT SUCH A COURSE COULD BE THE MOST CONSTRUCTIVE ONE OFFERED. AFTER ALL, ISN'T IT LIKELY THAT MANY OF THE VENTURES WE ARE PROMPTING BY OUR EFFORTS WILL HAVE TO DISCONTINUE? NOTE THAT I DID NOT USE THE TERM "FAIL". THE TRAGEDIES WHICH MIGHT BE AVOIDED BY AN AWARENESS OF THE MEANS OF "TERMINATING A BUSINESS WITH DIGNITY AND HONOR" AND BY OUR IMPARTING THE THOUGHT THAT IT IS NOT A DISGRACE TO DECIDE TO DISCONTINUE AN ENTERPRISE COULD BE SIGNIFICANT. WHY MUST ENTREPRENEURS BELIEVE THEY HAVE SUCH CONTROL OVER THEIR ENVIRONMENT THAT THEIR SUCCESS IS SOMEHOW PREORDAINED? IT ISN'T, AND THEY SHOULD BE HELPED BY KNOWING THAT MOST SUCCESSFUL ENTREPRENEURS FREQUENTLY HAVE HAD NON-SUCCESSES IN THEIR BACKGROUNDS BEFORE ACHIEVING THE NIVERNA OF BECOMING CASH FLOW POSITIVE AND DEBT LOAD MANAGEABLE. WE OWE IT TO OUR STUDENTS TO GIVE THEM RELIEF THROUGH THE KNOWLEDGE THAT IT'S OKAY TO HAVE BEEN WRONG, OR PREMATURE IN THE DEVELOPMENT CYCLE WITHOUT HAVING THE STAYING POWER OF LARGER, THOUGH PERHAPS LESS VISIONARY ENTITIES.

ONE LAST EXTRANEOUS THOUGHT. THE INFORMATION AGE IN WHICH WE FIND OURSELVES IS NOT THE SAME, AND MAY BE THE OPPOSITE OF, A COGNITIVE AGE. A SURPLUS OF COMMUNICATIONS CAN RESULT IN A LESSENING OF THOUGHTFUL CONSIDERATION. THE TOWER OF BABEL WAS PROBABLY NOT BUILT WITHOUT THE ASSISTANCE OF A LOT OF CONSULTANTS.

THANK YOU FOR LISTENING TO THESE BRIEF AND ABBREVIATED THOUGHTS. I PROMISED GEORGE THAT I'D KEEP MY REMARKS IN THE SAME FORMAT AS YOU'VE COME TO EXPECT FROM VENTURE..TIGHT, BRIGHT AND HOPEFULLY PROVOCATIVE. I HOPE I'VE SUCCEEDED.

FRANK S. SWAIN
CHIEF COUNSEL FOR ADVOCACY
U.S. SMALL BUSINESS ADMINISTRATION

"SELF EMPLOYMENT: WHO ARE THE ENTREPRENEURS AND HOW DOES GOVERNMENT CREATE A CLIMATE FOR THESE PEOPLE?"

The Entrepreneurial Renaissance

- During both the recent recession, and the more recent recovery, small firms have continued to create more new jobs and innovations than large business.

- In 1982, many economists were predicting "economic doom." What actually happened is one of the most remarkable economic achievements in the past twenty years. Rather than collapsing, the American economy spurted ahead by 6.9 percent in 1984, turning in its best performance in 33 years. An inflation rate of 3.7 percent -- the lowest since 1967 -- reinforced the already strong recovery. The unemployment rate shrank from 10.8 to 7.5 percent, even as the work force expanded dramatically. A main reason for this upswing is the small business sector, which continues to generate more than its share of new jobs.

- Small businesses dominated employment growth during the recent recovery. Out of the approximately 7 million jobs created in the last two years, an estimated 5 million were created by small businesses. Even during the 1981-1982 recession, small firms created 2.6 million new jobs, more than offsetting the 1.7 million jobs lost by large corporations during that period.

- Small businesses shared well in the economy's overall growth during 1984. Again, small businesses led the way in job generation. From October 1982 through October 1984, employment in industries dominated by small firms (construction, retail and wholesale trade, finance, and services) rose 11.4 percent; employment in industries dominated by large businesses (mining, manufacturing) rose 5.3 percent.

- Small business income, as measured by sole proprietorships and partnerships, increased 33.7 percent during the first six months of 1984. The small business income gain in 1983 was 11.3 percent.

- New business incorporations, just about all representing small firms, totaled about 650,000 for 1984, a new record. tne previous record, 600,000, was set in 1983. Business starts during the first half of 1984 increased 7 percent.

- Signs still point to strong growth for small businesses until the end of this century. Within the next ten years several high growth industries such as health services, business services, communications, and manufacturing will be dominated by small firms, which are expected to contribute most of the new jobs.

- During the past ten years, more people than ever before have gone into business. In fact, the number has doubled

- Why the increase in both new incorporations and bankruptcies?

- During the last recession, many individuals chose to start their own businesses. Some of these entrepreneurs came from the ranks of previously employed wage-and-salary earners. Many lacked business skills and a track record and it is this group that was especially hard hit by the high bankruptcy rates. For these and other reasons, the rise in failed businesses continued during the recession and into the recovery. New business formation means that certain market demands are being met. As long as this process continues, then bankruptcies do not imply an unsound economic system. It simply means that some people should not have gone into business for themselves.

- Research by my office concludes that small businesses, when adapting to change in market demand, quickly adjust their response more effectively than large businesses. Small businesses serve a useful economic purpose by entering a market when there is an appparent opportunity and by leaving it when they are unable to sustain a viable operation.

- How well a company adapts is a sign of how well it competes. The small firm's strongest attribute is its adaptiveness. New and expanding small firms are the undisputed job machines of the American economy. For example, firms with fewer than 100 employees provide two-thirds of all first time jobs. And because many workers gravitate toward large corporations, small firms often end up as the training ground for large companies.

- The Role of Government

- Government affects this process in many ways--both helping and hindering small firm growth. Broad tax and monetary policies determine the climate for all businesses and changes in tax laws can choke the entrepreneurial spirit quickly or they can spur new bursts of entrepreneurship. This is what happened with the 1981 capital gains tax reduction. Venture capital firms increased their estimated disbursements by about $300 million.

One area that I believe is especially important is the area of regulation, because it affects small firms to a much greater degree than large firms. One study we've done showed that regulatory costs tend to be three times as high for small firms as for large (FAUCETT).

- In the past decade, the removal of regulatory barriers in certain sectors of the economy has spurred small business growth. In formerly regulated industries, such as airlines, trucking and finance, new businesses and jobs have been created. This new business surge is directly traceable to a more competitive and less restrictive business environment because of deregulation.

- Government control of the marketplace is an inefficient way to allocate society's resources. Dictating how much an industry may produce causes overproduction, top-heavy inventory and higher prices for the consumer. Deregulation immediately lowered passenger and mileage costs for the airline and trucking industries. Between 1981 and 1983, the number of new air carriers increased along with the number of domestic passsengers -- including the very successful Peoples Express.

- The same type of changes are occurring in the financial services industries.

- This entrepreneurial frenzy in deregulated industries meant more jobs. Firms in these industries are hiring an expanding share of the work force. About 25 percent of the 12 million new jobs created between 1976 and 1982 came from deregulated industries. New business starts between 1980 and 1983 in the deregulated sectors of transportation, communications and financial service sectors rose about 25 percent -- about twice the rate of increase for the whole economy.

- Small firms are able to benefit from the deregulatory trend because of their flexible and adaptive nature, which permits them to quickly take advantage of new market opportunities. (A good example is the trucking industry)

- Legislative deregulation is not our only concern. Many rules and laws are made by Federal agencies.

- The Regulatory Flexibility Act forces agencies to be more concerned about small business when they write rules and regulations. My office is responsible for monitoring the agencies' actions.

- Some of the key regulatory issues coming up this year are:

    - EPA -- RCRA is going to be very tough on small business. One provision, Leaking Underground Storage Tanks, will force anyone with an underground storage tank to install a device to detect underground leakage.

    - LABOR -- Plan asset rules govern the way pension funds are used, and tells where these funds have to be invested. We would like for Labor to ease up on these rules, so we will be working closely with them in the coming months.

    - PROCUREMENT RULEMAKING -- There will be a number of significant procurement regulations which are subject to notice and comment rulemaking, as well as the RFA.

- I am quite sure that this entrepreneurial renaissance has happened despite the Federal Government, not because of it. My job will continue to be one of seeing that agencies in the Federal Government don't get in the way.

"INNOVATION: WHERE IS THE RELISH?"

FREDERICK HERZBERG
UNIVERSITY OF UTAH

ABSTRACT

Qualities that are associated with innovation are: (1) intelligence focused on clients and products, (2) expertise developed on the job, (3) unconventionality, (4) effectiveness in ambiguity, (5) feeling of self, (6) separation of motivator from hygiene values, (7) active control of anxiety, (8) control of careerism, (9) intuition, and (10) passionate enjoyment of life.

INTRODUCTION

The two most sought after things in life are the Philosopher's Stone and the Fountain of Youth. As an aging management philosopher, I would prefer to find the Fountain of Youth. But the subject of this conference is innovation and so I have left my bottle of Grecian Formula in the medicine chest and have picked up my copy of The Secrets of the Cabal. But before offering these secrets, let me first review my years of experience in introducing what I hope have been some innovative programs in industry.

It is 25 years since the publication of The Motivation to Work in which the Motivation-Hygiene theory was formally presented. Motivation-Hygiene theory was a new way of looking at job attitudes which had been obscured by previous procedures. Psychologists had been stuck with instruments which were bound by our casual use of language. Feelings of satisfaction and happiness had been routinely compared with feelings of dissatisfaction, and unhappiness because of prefixes in the language. As a result, qualitatively different feelings had come to be misunderstood as quantitatively opposite feelings. In the particular case of job attitudes, this resulted in expressions of job satisfaction implying the absence of job dissatisfaction and vice versa. Motivation-Hygiene theory suggested that we were comparing oranges to potatoes. With the proposition that job satisfaction and job dissatisfaction were not opposite feelings but different feelings, we were free to explore more deeply the nature of job attitudes. Our study examined two different and simultaneous feelings that people experienced about their jobs. We found that job events that caused negative feelings and attitudes stemmed from environmental sources of pain, discomfort, or unfairness in the way people were treated. On the other hand, job events that caused positive feelings and attitudes were experiences of psychological growth originating in what people did themselves. The environment of the job was described by the following terms in order of their frequency of occurrence in the critical incidents:

Company Policy and Administration
Supervision
Interpersonal Relations with Peers, Supervisors and Subordinates. (Later studies showed that interper-

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sonal variables involved in client relationships are part of the work itself - a Motivator)
Salary
Working Conditions
Security

These were termed Hygiene Factors, signifying factors of environmental origin that removed negative attitudinal feelings.

The sources of satisfaction in order of their frequency of occurrence were given the terms of:

Achievement
Recognition for Achievement (a later refinement to distinguish the human relations approval - a Motivator)
Responsibility
Work Itself
Growth

These terms were labeled the Motivators since their appearance in critical incident job events were associated with better long-term performance. The Hygiene events were associated with negative performance or with short-term improvement. I then differentiated Motivation from Movement on the basis of these two distinct types of performances. One (Hygiene) remedial and short-term - that is Movement; the other (Motivator) ameliorative and long-term - that is Motivation.

In Work and the Nature of Man, I expanded the theory to all dimensions of human experiences and in The Managerial Choice, to its broad social significance and to more specific guides to work motivation. The major guide to work motivation was the development of the strategy of Job Enrichment. Job Enrichment was aimed at ameliorative performance which includes, in addition to more and better performance, the new or innovative. The conclusion of Motivation-Hygiene theory and its application through job enrichment was that enhancing innovation is best achieved by enhancing the motivators on the job. Whatever was achieved in this goal by the Movement process of Hygiene manipulation was too scanty and too costly. The Hygiene climate of the organization was not nearly as important for innovation as the Motivator potential of actual jobs that people do.

Out of Job Enrichment studies came two other findings that clarified Motivation-Hygiene theory and provided clues to making more innovation possible in job design. From hundreds of studies involving a wide range of occupations and different cultures, it was found that the central core for job enrichment and the innovative consequences of job enrichment was an employee's identification and concern with the product or service that he was assigned to and his identification and concern with the user of his product or service. More often than not the user was an internal client in the organization. By redesigning the task as client-oriented and training the employee to appreciate the value and intrinsic interest of his product, the other ingredients of a good job were more easily installed:

Direct Feedback
Control Over Resources
Direct Communications Authority
Self-Scheduling
New Learning
Unique Expertise
Sensory Feeling

Sensory Ingredients of Job Enrichment

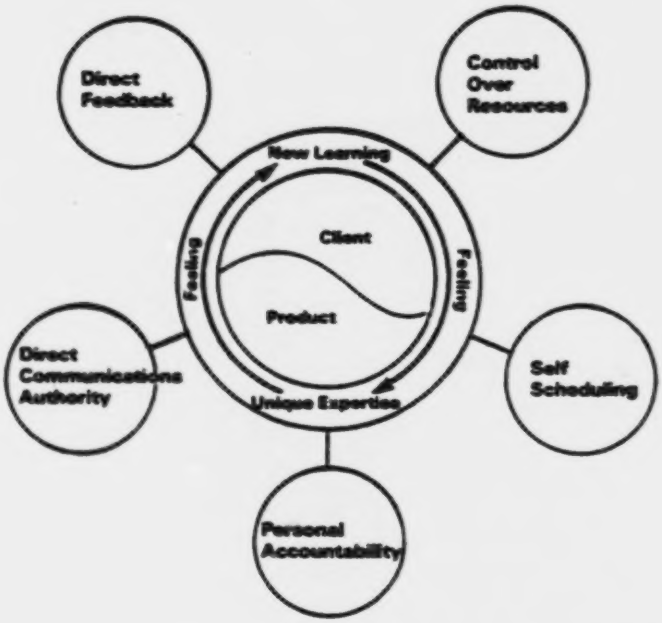
Direct Feedback
Control Over Resources
New Learning
Client
Feeling
Feeling
Product
Direct Communications Authority
Self Scheduling
Unique Expertise
Personal Accountability

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FIGURE I

BEST COPY AVAILABLE

If you want to see institutionalized innovation in action, participate in a Job Enrichment program. My thoughts on innovation stem not from Secrets of the Cabal, but from my teaching of Motivation-Hygiene theory and its Job Enrichment applications.

THOUGHTS ON INNOVATION

While these conferences are designed to advise organizations what kind of climate they can create to achieve innovation, most of the comments that I will make describe not the external freedoms that bring about innovation but the internal freedoms. No matter how much organizational manure is used to bring out innovative flourishing, the plant must have its own characteristics for proper blooming. I will discuss 10 characteristics of innovative people because that is the conventional number for a conference on innovation. My comments are just that -- comments. They are not conclusions from research nor from closely reasoned arguments. They are, as I said, mostly observations of people struggling with the concepts of Motivation-Hygiene theory and trying to implement some of its precepts - particularly Job Enrichment. The 10 I will discuss are: Intelligence Quotient, Subject Matter Expertise, Conventionality, Effectiveness in Ambiguity, Feeling the Self, Separation of Motivator and Hygiene Rewards, Control of Anxiety, Control of Careerism, Intuition, and Passion.

1. Intelligence Quotient

The Noble Savage concept makes a virtue of necessity. A savage hasn't the freedom of employing his wits because he lacks sufficient IQ or he dismisses the relevancy of intelligence. But there can be no denying that an above average IQ is a prerequisite to innovation. A higher IQ widens the intellectual instrument that is the mind. The direct action man like Alexander the Great may have opened the route to an ambitious conquest when he cut the Gordian Knot dividing Europe from Asia, but his other so-called innovations were mostly mythologies contrived by apologists who followed him. Apologists often attribute innovation to the tyrants they follow -- industrial as well as political. Mussolini was credited with making trains run on time, and German apologists tell us that Hitler built super highways. In the industrial sphere, business apologists tell us that the Robber Barons of the 19th century left us innovative museums and endowments, and that today's corporate raiders have put innovative Wall Street arbitragers on the cover of Time magazine. But tyrannic action constricted the intelligence of these people and the result is questionable innovative good.

As we further examine the relationship of IQ to innovation, it seems that innovative people are not necessarily brilliant people.

An IQ beyond one-half standard deviation above the mean does not seem to be significantly correlated with innovative achievements. In fact, extremely high IQ's can be a detriment to innovation because such measured IQ's are too highly correlated with standard educational achievement. It is the reinforcement of standard performance that inhibits seeking satisfaction outside the standards. Our present IQ measures are not only culture bound, they are criteria bound. They are good for predicting ritualistic academic performance. The walls of academe too often shut out the infinities of nature -- only admitting those ideas that are compatible with the etiquette and rules of the teaching institution.

2. Subject Matter Expertise

I don't believe that there are any virgin ideas. It is a Christian concept that a virgin mother is a necessity for an invention. Innovative people must have a high degree of subject matter expertise; but without achieving the status or the self image of an authority. Authority status sets up an auto-immune destroying reaction to new ideas -- the BIYOB (the belief in your own bull shit) syndrome.

The accelerated obsolesence of knowledge resulting in the diminishing half life of technical and professional competence makes expertise heavily dependent on the lifetime of continuous learning. This obligation of constantly updating oneself is onerous. Devoutly to be wished is the ability to rest on one's achieved competence and thereby make a living tomorrow on what you did yesterday. This wish is a major barrier to an innovative mind and an entrepreneurial spirit. Mental health, however, often dictates that we abide by the adage of "sufficient unto the day." The resolution of this internal conflict must be approached with innovative ideas also.

We must find a way of making continuous learning less foreboding and onerous. But, alas, our approach has been to meet this problem with "more of the same" pedagogy -- more schooling and more advanced degrees with are more symbolic than substantive.

Continuous learning is better achieved as part of the task of doing one's present work. It should not be turned over to the teaching experts or to the institutions of learning. It should be built into the everyday activities performed by the individual. In my prescription for a good job in enrichment programs, I put as a central core of job design the acquiring of new learning and the development of unique expertise. We must de-school more learning in favor of more live learning.

3. Conventionality

Inability to make it conventionally is highly correlated with innovation. Einstein would never have made it to the top in the patent office where he worked. Mozart was not an Italian during the period when Italians dominated musical composition, and besides he does not seem to have had a personality that pleased those in power. Michaelangelo was a sculptor, not a painter, and felt unable to do a conventional job of painting the ceiling of the Sistine Chapel. Education to increase ability emphasizes standardized choices; whereas the innovative answer is always "none of the above."

Innovative people feel free to challenge the rules of the game; whereas those operating within the rules spend their energy struggling to break existing "records" -- their metaphors are of the wide world of sports.

An allied correlation with innovation is conventional success that brings no satisfaction. People who seem to have made it but feel miserable are driven to seek out innovative answers to their predicament. They are forced to question the premises of their success, and to separate motivator rewards of growth from hygiene rewards of group approval. That is why the innovator is often an outsider, unable to kid himself that group approval means personal growth and satisfaction. The contrast with Japanese emphasis on group approval is apparent here -- groups assimilate ideas rather than generate ideas.

4. Effectiveness in Ambiguity

This ability is one of the three that I have previously listed in my laws of growth that is characteristic of the highest level of a person's psychological development. The other two are knowing who you are and the separation of motivator rewards from hygiene rewards in your pursuit of happiness.

Without ambiguity there can be no innovation. The experience of ambiguity is proportional to one's tolerance for such experiences. The greater the tolerance for ambiguity the more one's internal freedom to experience. The socialization process by which we become a member in a society is geared to reducing ambiguity, initially for the survival of the young. Socialization that occurs after this necessary objective is reached serves more to control the individual than to protect him.

The acceptance of "I don't know" must come before innovation. But organized society can only operate on the myth that we know.

As a consequence, very little in our formal educational systems teaches us the value of not knowing. This preference for knowing over not knowing leads us to the absurd pursuit of sureness, as if knowing begets certainty. We further protect ourselves from not knowing by an obsession with insurance policies, lessening our ability to act in ambiguous situations without adequate coverage. Without such coverage we don't go into many parts of the forest. No discovery is the price for certitude. Without experience in discovery we are bound to be ineffective when faced with the unknown. A vicious circle ensues. Ineffectiveness in ambiguity makes us shun ambiguity which increases ineffectiveness in ambiguity. The circle of our experiences and awareness becomes smaller. But there really is no place to hide -- shouting "stop the world" only falls on the ears of the other fearful who reinforce your own fears.

Society only pays for answers and denies people the luxurious feeling of not having answers. Innovation must await the pleasure that comes with not knowing. Feeling secure in not knowing must be permitted in our organizations if they hope to be innovative.

5. Feeling the Self

Innovative people have a deep sense of who they are. Most people exist as a conglomerate of roles, and roles imply acting. The innovative person is not acting, he is being. He cannot explain who he is because such recognition cannot be conceptualized nor verbalized. It can only be felt. It is this non-intellectualized nature of being that makes it so difficult to identify the innovative person. He knows who he is but cannot define himself to you. Since his being is not a role definition, his wonderings and wanderings are not circumscribed by the play acting roles he must follow in the conventional psychopathology of everyday life. He is thus spared the time-consuming rituals of explaining and justifying himself.

6. Separation of Motivator and Hygiene Rewards

The truly innovative person must get joy from what he is doing uncorrelated with his Hygiene situation. He does not wish to feel deprived -- he wants good Hygiene as much as anyone else. But he knows the difference between the relief of pain and joy of a new being that psychological growth brings. Since status is a Hygiene factor he eschews growing at the expense of others. He wants to be taller as measured by his own past psychological height. Taller in comparison with others is not his Motivator goal, though it might suit his Hygiene tastes. Tolerance for other's morality, that is, taste, and pursuit of ethics, that is, fairness, becomes the guidelines of his behavior to others. We have too many examples of innovations made by unethical people to claim that this level of growth is a highly correlated characteristic of innovators. But such individuals tend to seed their own destruction, but not before becoming models for new innovative talent. The result can be an ever diminishing pool of innovative talents and eventually a non-innovative society.

7. Control of Anxiety

Innovative people practice active anxiety control as opposed to passive anxiety control. In active anxiety control the individual attempts to influence existing realities. In passive control the individual attempts to accommodate to existing realities. They do this by one of four methods:

(1) Scanning each situation to see which way the wind is blowing and setting their sails accordingly. This gives them a semi-predictive capability and as such can reduce the anxiety of the unknown.

(2) Expanding one's ego by identifying oneself as part of a larger group -- the family, the worker-team, the organization. Anxiety can be allayed by removing the loneliness of individuality by his vicarious association with something larger than himself.

(3) Reducing anxiety by putting oneself in the hands of the fates, thereby accepting what comes.

(4) Rationalizing events for their brighter side.

These secondary control mechanisms for handling personal anxiety are very characteristic of the Japanese. They stem from the Buddhist tradition of subjugating the ego to the larger units of society and indeed the universe. The ideal of Buddhist Nirvana is the death of the ego. While this approach can be beneficial to the mental health of the individual, it puts a damper on individual innovative thought and activity -- a problem that the Japanese are recognizing and attempting to ameliorate.

The Japanese do not experience as much Motivator anxiety as our culture produces; that is, anxiety that comes with the anticipation of achievement as opposed to Hygiene anxiety which is the anticipation of physical, social or existential pain. Motivator anxiety is highly correlated with innovation -- it is the energy that sustains activity in ambiguity. In general, the innovator experiences more Motivator anxiety than Hygiene anxiety.

8. Control of Careerism

The innovative person is seldom a careerist. He prefers accomplishment. The "careerist" lives his life as a conglomerate of single dimensions, with his work divorced from his personal values, his family, his leisure, his spiritual feelings, his social obligations, and so on. His work is also generally at odds with what he personally needs. He is the product of technology and technological systems. This splitting of what he does in his occupation from all other aspects of his life has consequences that impact the organization in terms of rigidity, personal selfishness, and hostility. This hostility, however, is unconscious and well-disguised.

The careerist feels he must agree with the boss in order to get ahead, and, in hiding his true feelings and opinions, builds up hostility against the boss and the company. The organization often encourages this servant mentality in middle management, especially when organizations see manpower strategy as a progression of career aspirations for their employees. The tools of behavioral science are unfortunately geared to the career-seeking mode of human resources management, with only platitudinous gestures to humanistic content in their management development programs.

The career is a myth. Career paths cannot match life paths. You manage your career - you will miss your life. W. H. Auden's poem "The Unknown Citizen" captures the whimper of the careerist:

> "He was found by the Bureau of Statistics to be
> One against whom there was no official complaint,
> And all the reports on his conduct agree
> That, in the modern sense of an old-fashioned word,
> he was a saint.
> For in everything he did he served the Greater Community.
> Except for the War till the day he retired
> He worked in a factory and never got fired.
> But satisfied his employers, Fudge Motors Inc."

Auden goes on to describe the boring sequence of events in the proscribed life of the careerist and ends with:

> "Was he free? Was he happy? The question is absurd:
> Had anything been wrong, we should certainly have heard."

9. Intuition

Socrates said that an unexamined life is not worth living. It is equally true that an overexamined life is boring. We have been taught to celebrate the mind. While we must give the mind its due as one of the most useful tools that the human being has, it is also our worst enemy. It is a deductive organism that leads us, whenever overused, to negative thoughts. The mind is a tool just like our hands. But when we wish to rest our hands, we can put them in our pockets or fold them in our laps. It is much more difficult to stop the mind because of its evolutionary design to protect us from destruction. The exhortation always to *think* makes it more impossible to put the infernal machine away. The mind is too damned judgmental and has too many connections to the past and to images of the future. The mind, when operating, cannot exist in the present. When we think we are absent.

Innovation requires awareness of the present and this can only come about by not thinking. The innovative person uses his mind as a tool and like his hands, can put it away. It is at these times of rest that new ideas and connections can emerge.

You really cannot think your way through problems. You can only arrive at certain predictable deductions. Innovative problem solving requires questioning of the premises. This can only come about paradoxically when the mind is not doing what it is so best equipped to do and that is deducing.

In writing this it occurred to me how few great innovations were products of formal scientific procedures. So many innovations seem to have been the result of thrashing about with the data at hand. Social scientists worship scientific procedures perhaps because they hope that the rigor of their methods compensates for the puerility of their content. The scientists in the harder disciplines have richer content, and they feel less need to show off the rigor of their methodology. Rigor is an intrinsic habit of the good scientist. But rigormortis of pure mathematicians may explain the early burnout in this field.

10. Passion

Passion is a feeling that it is great to be alive at the moment. It is not a feeling attached to a single item, rather a generalized feeling of heightened awareness of one's surroundings and happenings. This awareness is pure experience divorced from thought.

Passion is not relief - not anticipation - not success. It is rather the fullest extent of being alive and being a part of all that *is*. It releases one to the spontaneity of the moment.

Confusing passion with the feelings accompanying a rebound from deficiency or the fulfillment of expectations or the seeing of an opportunity for the future -- all these restrict awareness and constrict spontaneity -- missing the present and resulting in ritualized thinking that destroys intuition. The Eureka of induction is traded in for the sigh of deduction. At work, passion is possible only when "I am doing it." Intuition is always accompanied by feelings - "gut feelings" - "in my bones" - "something tells me" - "I got an itch" - "it rubs me." Innovative people are sensuous. Their minds work as a whole - the discipline of the neo-cortical brain - the emotions of the mammalian brain - and the aggression of the reptilian brain. Logic, color, and energy are combined into a passionate intuition. Where is the passion in lighting candles to the 5 billion K chip, in serving financial indices rather than clients and products, in participating in precision humanities (sports, sex, learning evaluated on a 10-point scale)?

BARRIERS TO INNOVATION

Barriers to innovation are as many as there are individual differences. Few organizations can provide customized attention to bring out the innovative talents of their members. I will limit my thoughts to 3 Mega-Barriers that have blocked the potential to innovation and entrepreneurship. The first is in the recent priorities of industrial organizations, the second is the growth of professional societies and the third is the intrusion of sacred institutions.

1. Barrier to Organization Priorities

If we look at the general outline of American industry since World War II there appears to be one fundamental managerial brake on our historical talent for innovation and entrepreneurship. And that is the progressive shift of management attention away from quality production to the more abstract staff functions in our companies. Up through World War II those who were in charge of production were seen as the kings in the organization with the staff functions of organization experts, salespersons, marketing strategists and finance overseers as primarily serving the front line production people. When the war ended, America found herself with her production plant intact and her markets assured. Our organizations felt they did not have to concentrate on production but on how to organize themselves to meet their mission as the world's primary supplier of goods and services.

What happened was that successive staff functions superseded line functions as the primary movers in organizations and these staff functions were in areas of higher abstractions. We got away from our products and we got away from the concern with our customers as our innovation went in reorganizing, advertising, repackaging, and creative accounting, and for some of our defense industries, creative billing. We lost creative production, creative engineering, creative design, and even CAD/CAM could only facilitate ideas but not generate them. The Germans and then the

Japanese have taught us that quality production and customer concern are still the basic front line activities of a corporation. The unloading of disparate companies that has been taking place by conglomerates shows that pure management expertise without a familiar knowledge of a company's product and customer is not a viable concept.

2. Barrier to Professional Societies

The last decade has seen a horrendous increase in the numbers of new professional societies. The former Chairman of the Federal Trade Commission, Michael Pertschuk, commented on this trend as follows: "The increasing ubiquity of the professionals has had an insidious, intimidating effect. The professional stockbroker, real estate agent, insurance agent, doctor, dentist, lawyer, pharmacist, auto mechanic, architect, interior decorator, psychiatrist, mortician, family planner, organizational development specialist -- all now counsel us about our needs, advise us about what we should want, and then service these prescriptions."

This increase has been prompted less from the desire to improve the knowledge and the applied competence of the membership of these societies than to cash in economically on the power that these Guilds provide.

Guilds have always served to protect the lowest common denominator. Their purported service of protecting the consumer has historically been shown to be much less than their propaganda would have us believe. Few true innovators have profited from membership in guilds, in fact, they have suffered from their membership. The envy of the new and the fear of the new is nowhere more pronounced than in professional societies. Those who can spend an inordinate amount of time required to become the establishment in these societies are not the best of the innovators. The establishment becomes a clique of gatekeepers of what is acceptable. Their power to weaken and destroy the new has filled our history of science literature with a museum of intellectual atrocities.

3. Barrier of Sacred Institutions

Historically, one of the greatest inhibitors of customer concern and innovation is the capture of knowledge by sacred institutions. This phenomenon is so well-known that I am including it here as more of a reminder than an original idea. When the Medieval Church captured Aristotle we became stuck until the Age of Enlightenment in Aristotlian logic and the state of the art of Greek knowledge and thought that was 1500 years out of date.

More recently, with development of sacred institutions of the

Welfare State and the Military-Industrial complex, we see the Holiness of Government capturing individual conscience and patriotism. Their classified and ideologically tainted knowledge support ineffective social and defense programs which masquerade as innovations. The Holy Orders of bureaucratic servants too often ignore quality service to the customer -- the people of the United States.

SOME GENERAL SUGGESTIONS

1. Focus the intelligence of your employees on the product and the customer. Do this by enriching the jobs of hands-on producers first, and backing into the system, enriching support jobs that serve these internal clients. Thus, making Job Enrichment an organizational innovation.

2. Enhance subject-matter expertise with live learning. Have managers, and others with abstract knowledge of products and clients, personally assemble the core product or deliver the core service with their own hends.

3. Encourage unconventional "none of the above" answers and a questioning of some of the premises of "record-breaking" goals.

4. Encourage employees to feel the pleasure, the adventure, of ambiguity and uncertainty. Allow the answer "I don't know."

5. Avoid making your employees explain and justify themselves constantly.

6. Help employees to separate motivator from hygiene rewards. Do this by limiting bribes for achievement.

7. Don't confuse the motivator anxiety of "Can I do it?" with the hygiene anxiety of "Do I fit in?"

8. Reinforce accomplishment rather than careerism.

9. Don't overthink. Put some trust in sensuous intuition.

10. Finally, enjoy the passion. We in the United States know where the beef is and we know where the bun is, but where's the relish?

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SESSION PAPERS

A) ENTREPRENEURIAL EFFECT ON THE ECONOMY

"ENTREPRENEURSHIP AND ECONOMIC GROWTH: TOWARD A NEW CONCEPTUAL FRAMEWORK"

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ABSTRACT

The purpose of this paper is to devise a new conceptual framework for the study of the linkage between entrepreneurship and economic growth in the United States and other industrially-advanced countries. This paper posits a theory of economic redevelopment to measure the contribution of the entrepreneurial sector by building upward from smaller economic units. A key goal would be to develop estimates of regional and total entrepreneurial product, i.e. the final market value of the goods and services produced by the entrepreneurial sector of the economy. Once we are able to quantify and monitor the contribution of the entrepreneurial sector to total economic activity, we will be able to devise and implement policies which will encourage would-be entrepreneurs to assume the risks of this vital economic role.

INTRODUCTION

One day two businesspersons decided to chance fate and go flying in a huge, multi-colored, hot-air balloon. While they were sailing about the skys, they drifted into a thick, pea soup-like fog bank. For several hours the intrepid balloonists meandered about, unable to see the land below to fix their position. Suddenly, their luck improved and the balloon drifted into a clear patch of sky. Looking downward, they saw a farmer inspecting the corn crop in a field. Maneuvering the balloon near to the farmer, one of the businesspersons hailed, "Excuse me, we're lost. Would you please tell us exactly where we are?"

"In the center of my corn field," replied the farmer.

Suddenly, an updraft propelled the balloon upward and back into the fog bank. One businessperson turned to the other and said, "That farmer had to be an economist."

"Why do you say that?" said the second businessperson.

"Because," the first businessperson replied, "what he told us was absolutely correct but it has no practical value."

The underlying thesis of this paper is that the theories of entrepreneurship postulated by economists have no practical value when applied to the structural economic problems faced today by the United States and other mature industrial countries.

A review of the literature concerning the linkage between of entrepreneurial activity and economic growth indicates that we know more about their interconnection in newly industralizing countries (e.g. Nigeria, Ghana and Thailand) than we do in the industrial countries (e.g. Japan) and the mature industrialized countries (e.g. the United States). (1) This is because economists have usually treated entrepreneurship as part of the general study of economic development, "the process of improving the standard of living and well being of the population of developing countries by raising per capita incomes"(2), or as the nonquantifiable (and therefore ignored) factor of production. "As a dependent variable, the entrepreneur rapidly vanishes into the shadows of such imperious factors of production as land, labor, and capital, such massive numbers as money and aggregate demand."(3)

One solution to some of the structural economic problems faced by the United States is the creation of an economic, social and political environment in which entrepreneurial activity can flourish. A key ingredient of this environment is a set of public policies which stimulate entrepreneurs to "try their luck" in the marketplace. But before a rational and consistent set of public policies can be established, economists must analyze the linkage between entrepreneurship and economic activity as it relates to the structural economic problems of the industrially-advanced countries. The purpose of this paper is to develop a new conceptual framework to study the linkage between entrepreneurship and economic growth in the United States.

This paper is divided into four sections. In the next section a brief overview of the major structural economic problems that the U.S. is facing and will continue to face in the 1980s is presented. Following that there is an analysis of the failure of the traditional methods of economic inquiry to provide solutions to these structural problems. The final sections detail a new conceptual framework for the study of entrepreneurship and economic growth as well as the conclusion of this paper.

THE SCOPE OF THE STRUCTURAL ECONOMIC PROBLEMS IN THE U.S.

Since mid-1983, the U.S. has been in one of the most robust periods of economic expansion in the post-World War II era. Inflation-adjusted gross national product advanced at a vigorous 6.8 percent for full-year 1984, its largest gain in percentage terms since 1951. Most economists are projecting real economic growth in the range of 3 to 4 percent for 1985. The civilian unemployment rate has fallen from its 1981-1982 recession high of 10.9 percent to 7.3 percent in February, 1985, the most recent period for which data are available. During this period, more than 3 million new jobs have been created. At the same time, both consumer and producer price inflation have remained in low single-digits, thereby lessening the erosion of purchasing power of individuals and businesses.

But despite this impressive record of economic achievement there are several structural problems which could have serious long-term social and economic consequences. These trouble spots include:

*A shift from capital and/or labor-intensive production to knowledge-intensive production. This phenomenon has two important effects on the U.S. economy.

The first is the gradual decline of the economic importance of the industrial sector of the U.S. economy. Capacity utilization rates and production in many of our key industrial sectors, such as steel, farm equipment and construction machinery, are still at levels far below those achieved in the expansion phase of the previous eight post-World War II business cycles.

The second effect is the continued upward trending of the "full-employment" unemployment rate from 4 percent in the 1950s to 7-plus percent in the 1980s. The Bureau of Labor Statistics (BLS) of the Department of Labor reported that in February 1984 nearly 8.4 million Americans are unemployed and seeking work.(4) If the number of discouraged workers (persons who have given up looking for a job) and number of workers who have part-time jobs because they cannot find full-time employment are added to the official unemployment figures, the U.S. unemployment/underemployment rate totals approximately 11 percent of the civilian labor force or nearly 12.7 million persons.

* A declining standard of living for millions of American families. The Bureau of the Census of the Department of Commerce estimated recently that inflation-adjusted median

family income has declined by more than 10 percent since 1979.(5) This decline is probably due to the fact that many workers have sustained long periods of unemployment or underemployment during this period. A recent BLS study of workers whose jobs were abolished or plants were closed between January 1979 and January 1984 noted that 45 percent of these displaced workers who were able to find jobs were earning less at their new job than they had been at their previous job.(6)

The large industrial corporations, historically the primary impetus to the U.S. economy's growth and maturity, can no longer contribute to the solution to our current structural economic problems. As noted above, it is the stagnation and/or decline of a large portion of our industrial sector that has caused many of our structural problems. Furthermore, many of the standard economic prescriptions for achieving full employment and maintaining economic prosperity are now exacerbating the problems (e.g. Federal Government deficit spending) or are designed to aid large, capital-intensive corporations (e.g. accelerated depreciation).

One solution to the problems noted above is to encourage entrepreneurship. Most entrepreneurial ventures begin as small businesses. The small business sector has been the main source of new job creation during the past decade.(7) There is some evidence indicating that the small business sector blunted the severity of the recent U.S. recessions.(8) But if economists are to grapple successfully with the structural economic problems the U.S. is facing today, we must adapt our traditional methods of inquiry and develop a new conceptual framework for the study of entrepreneurship.

THE TRADITIONAL METHODS OF ECONOMIC INQUIRY

Economists have used two approaches to the study of entrepreneurship: the case study approach and the econometric modeling approach.

The case study approach has been used in the U.S. to study the great entrepreneurs of the late 19th and early 20th centuries such as Carnegie, Westinghouse, Firestone, Rockefeller and Ford. Some studies have focused on more recent entrepreneurs such as Charles Packard, co-founder of the Hewlett-Packard Corporation, and Masuru Ibuka, the founder of the Sony Corporation. The goal of these studies is to analyze the methods entrepreneurs employed to build large corporations. It should be noted that many of the tactics used by the nineteenth and early twentieth century entrepreneurs to secure a foothold in the marketplace and eventually dominate it are illegal today. Case studies of more modern entrepreneurs have focused primarily on the technological breakthroughs that these people pioneered rather than the characteristics of the individuals themselves or the strategies they employed to achieve their success.

Furthermore, these case studies have been devoted almost exclusively to the success stories. It has been suggested that the typical entrepreneur fails five or six times before he or she finally carves a profitable niche in the marketplace. The case study approach applied to failures would also provide useful insights into the process of entrepreneurship.

A significant portion of the literature using the econometric modeling approach is concerned with the linkage and impact of entrepreneurs on the economic growth in the newly industrializing countries. Researchers have gathered data via surveys and by manipulating the meager data these countries are able to collect.(9) The econometric models the researchers have devised and the resulting mathematical equations "...conclusively demonstrate the significant impact that entrepreneurship has on the economic growth of..." (you can fill in the name of your favorite newly developing country). We need more econometric research on the contribution of the U.S. entrepreneurial sector to total economic growth.

But it should be noted that there are three problems with the econometric approach as it is being used currently to study entrepreneurship. First, econometric equations are derived mathematically from historical data. If these equations are used to forecast the future, then the forecaster is assuming that the future will be a mirror image of the past. This is a very dangerous assumption in most industrializing and industrialized countries because key endogenous or exogenous variables such as inflation, import controls, tax laws, etc. can change dramatically in a very short period of time.

The second problem is that there are many variables that encourage individuals to be entrepreneurs that are almost impossible to quantify. For example, variables such as racial prejudice, values and other psychological or behavioral factors that may contribute as much if not more to a person's willingness to assume entrepreneurial risk-taking are difficult to express in mathematical terms.

The third problem with the economic modeling approach is that it has been used chiefly in studies which have taken the "macro" approach to describe the linkage between entrepreneurship and economic growth. These studies have tended to focus on broad segments of the population or on the country as a whole. To build more reliable econometric models, we should begin our analysis with smaller economic units and build our models upward to the macroeconomy.

What is needed is a new conceptual framework in which either the case method approach or the econometric approach, or a combination of both, can be used to provide useful information concerning the linkage between entrepreneurship and economic growth.

TOWARD A NEW CONCEPTUAL FRAMEWORK FOR THE STUDY OF ENTREPRENEURSHIP AND ECONOMIC GROWTH

The conceptual framework for the study of the impact of entrepreneurship and economic growth must begin with a quantifiable definition of "entrepreneur." The entrepreneur is defined in the literature as:

"...the man who sees the opportunity for introducing a new technique or a new commodity, an improved organization, or for the development of a newly discovered resource. He raises the money to launch a new enterprise, assembles the factors of production, chooses top managers, and gets the organization going."(10)

"...the person who is responsible for the direction, control, superintendence and risk-bearing. It is risk-bearing that distinguishes the entrepreneur from the manager."(11)

"...the entrepreneur is an ... innovator. The pure entrepreneur may not even be permanently associated with a particular firm. Although he may assume managerial functions, these activities do not define his work as entrepreneurial in character ...".(12)

The common thread in two of the definitions quoted above is the concept of the entrepreneur as an "innovator." But as one psychologist has noted, "innovation (and creativity) have a messy quality about them."(13) From an economic standpoint, the first messy quality about innovation is that it is not an economic concept and cannot be defined easily as a quantifiable term. The second messy quality is that to limit the definition of entrepreneur to innovators is to restrict the study of entrepreneurship to a handful of individuals who have the rare ability to combine the factors of production in a novel manner. Third, the definition of an entrepreneur as an innovator implies that he/she is successful; or in economic terms, generates a profit. But many successful entrepreneurs do not generate a profit until several years after their innovation has entered the marketplace. To ignore their contribution to aggregate economic activity until they post a profit in their income statement cannot be justified from an economic standpoint.

The best (and easiest) way to resolve this problem is define an entrepreneur as any person who is the risk-bearer. This definition implies that anyone who launches an enterprise is an entrepreneur as long as they ultimately must bear the business risks associated with their enterprise. By using this definition, we can use data already being collected by the Federal Government and private organizations, such as Dunn & Bradstreet, to quantify the number of entrepreneurs participating in the economy at given points in time.

The second element of the conceptual framework proposed in this paper is the development of a theory of economic redevelopment. Development economics is concerned with increasing per capita income levels, creating infrastructure, such as transportation networks, developing efficient capital markets and educating people to increase the supply of skilled and semi-skilled labor. Development economics has very little applicability to the structural economic problems of the industrially-advanced countries. These countries already have a pool of trained, skilled and semi-skilled labor, adequate infrastructure and efficient capital markets.

"Industrial policy" is being touted as the panacea for our economic ills. But industrial policy will not stimulate economic redevelopment. As currently espoused by its proponents, industrial policy is concerned with Federal Government protection of our industrial dinosaurs, corporations that are too inefficient to compete domestically or internationally. These corporations are not engines of economic growth.

In contrast to industrial policy, a key concern of redevelopment economics is the creation of an environment in which entrepreneurship will increase in the economically depressed areas of the country. An economically depressed area is a region such as a state, where economic activity measured as employment (unemployment) or income per capita is significantly below (above) the national average.

The study of economic redevelopment begins at the local level, advances to the regional level and culminates at the national level. The body of economic theory that exists currently which is most relevant to the theory of economic redevelopment is regional economics. Regional economics is defined as "that

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branch of economic analysis which is concerned with the spatial distribution of economic activity and spatial levels of economic performance."(14)

Regional economics can be divided into micro and macro components. Regional microeconomics is concerned with "the location and interaction of particular economic activities." (15) Regions are not considered homogeneous units in this branch of regional economics. The key research interest is why certain economic activities are located in certain areas (e.g. silicon valley in California).

Regional macroeconomics is "the study of the comparative performance of a number of regions within a national economy but each region is regarded as being, in economic terms, homogeneous--that is no attention is given to variation within each region."(16) The comparative economic growth, stagnation or decline of regions, differing unemployment levels between regions and the movement and usage of the factors of production between regions are the primary research areas of this discipline.

An initial goal of redevelopment economics is the study of the business cycle of a region as well as the business cycles of the industries contained in the region. These "micro" business cycles could then be compared to the economy-wide business cycle. This will give us a better understanding of the contributions of regions and their industry sectors to overall economic activity during the stages of the business cycle.

Another goal of redevelopment economics is the quantification of total regional product and regional entrepreneurial product. Total regional product is defined as the final market value of all goods and services produced within a region within a given period of time. Total entrepreneurial product is defined as the final market value of all goods and services produced by the entrepreneurial sector within a given region within a stated period of time. From these elements we can construct better estimates of gross national product and total entrepreneurial product.

The quantification of total entrepreneurial product will enable us to monitor the economic health of this vital sector. With reliable data on the entrepreneurial sector, we will be better able to devise policies which will encourage entrepreneurs to enter the marketplace.

CONCLUSION

This paper is only an initial attempt to devise a new conceptual framework for the study of entrepreneurship and economic growth in industrially advanced nations. The framework proposed herein needs more refinement before it can be stated as a theoretical framework or research design. It is hoped that this paper will stimulate more thinking and research on this vital topic. Our future economic health depends on our ability to solve the structural economic problems we will face in the 1980s.

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"SMALL BUSINESS DYNAMICS, EFFECTIVE RESOURCE UTILIZATION, AND INNOVATION"

THOMAS A. GRAY

U. S. SMALL BUSINESS ADMINISTRATION

ABSTRACT

Small firms contribute to social welfare in several ways. Small businesses produce goods and service valued by society, and produce these outputs in a manner which contributes to overall economic efficiency and to effective utilization of scarce resources. This paper emphasizes the dynamism of the small business sector, exploring how small businesses adjust output in both the short run and the long run. Rapidly changing demands for goods and services, and changing costs related to innovation force small businesses to adjust rapidly to maximize chances for survival.

INTRODUCTION

Do small businesses contribute to the efficient operation of the American economy? The usual answer to this question is negative. After all, small businesses are "small." They are usually thought of as inefficient and relatively less capable than larger businesses. Many people think that small businesses are both less innovative and less productive than larger businesses. If there is any one statistic related to small business that newspapers and other media focus on, it is the failure rate of small businesses.

Americans traditionally like to identify with winners. Many of us have a vague feeling of unease when we speak of risky ventures. Our appreciation for the entrepreneurial spirit in the American economy may stem from our recognition that the ability to take chances and to bear risk is a relatively rare phenomenon. Continued research on the dynamics of small business, supported by the Office of Advocacy of the Small Business Administration using new files developed as part of the Small Business Data Base, indicates that small business failures may not be unambiguously bad. Small businesses failures may, in fact, lead to greater efficiency in the American economy. The research being done by and for the SBA points strongly to the conclusion that small businesses, in the face of unexpected changes in demand conditions or in the state

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of the world, respond by adjusting resource usage more quickly and more efficiently than large business. In many cases, the adjustments are made through the birth of new small firms, exploiting new innovations which introduce new products or services or lower the cost associated with producing existing goods or services. Small businesses may make equally efficient adjustments by closing their doors, stopping the stream of losses associated with a particular business activity and freeing up of resources for use in other more productive opportunities.[1]

To better understand how small businesses adjust output and employment in an uncertain world, this section begins with an examination of the dimensions of change in American business.

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[1] Note that the argument revolves around the uncertainty associated with business activity. If both small businesses and large businesses fully anticipated all of the factors affecting the state of the world, then both small and large businesses could be expected to move resources in an optimal manner. Given time enough and full knowledge, any set of resources can be moved efficiently to more productive uses. Casual inspection should be sufficient to confirm that the world is characterized by less than perfect knowledge of the future. The uncertainty which this introduces means that some firms, facing shifting demands and changing competitive situations may make less than optimal use of resources over time. This point will be developed more completely below.

SMALL BUSINESS AND GROWTH AND CHANGE IN THE AMERICAN ECONOMY

Large numbers of establishment births and large numbers of establishment deaths appear to be an important feature of American business. Some observers look at the number of births and deaths and comment on the waste of resources which the changes appear to represent. After all, don't businesses die because they are inefficient or poorly managed? Some businesses certainly are poorly managed and will not be able to meet market competition. Other businesses, even though well-managed, will also fail to survive. The question to be explored is whether or not market forces produce an efficient outcome. Does the failure of businesses, particularly small businesses represent a waste of resources, or an efficient use of resources designed to test the viability of an idea in a risky marketplace? The conclusion to be drawn here is that, for the most part, small businesses serve a useful economic function by entering and leaving markets for particular goods and services.

Many people think of change in the economy as a relatively slow process. The economic view changes over time, but the pace is usually slow from the point of view of the observer. Towns grow, shopping centers arise, and central business districts decay, all at a measured rate. This view of the world reflects a lack of appreciation of the tremendous number of changes which occur as businesses try to adjust and survive in a free-market, competitive economy. The Office of Advocacy of the Small Business Administration has recently completed the development of the United States Establishment Microdata File (USELM).[2] The USELM file contains data developed primarily from information provided by the Dun & Bradstreet

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[2] For a description of the USELM file and a comparison with the earlier United States Establishment and Enterprise Microdata file (USEEM) see "Constructing a Business Microdata Base for the Analysis of Small Business Activity," Office of Economic Research, Small Business Administration, November, 1984.

Corporation, covering businesses in the U.S. economy in the years 1976, 1978, 1980, and 1982. Approximately 5 million establishments and 4 million enterprises are found in each annual file.[3] The data in each annual file provide a cross-sectional view of the economy at a point in time. Table 1. shows the number of establishments in each period. Note that the net change in the number of establishments is relatively small. The larger increase shown in the 1980 to 1982 period is consistent with behavior in other recession periods. As the unemployment rate increases and relatively more people are out of work, the number of business startups increases.

Table 1. Number of Establishments in All Industries in the USELM File

	Number of Establishments	Two-Year Change	Percent Change
1976	4,280,809	--	--
1978	4,416,874	136,065	3.1
1980	4,552,673	135,719	3.1
1982	4,723,718	171,045	3.8

Source: U.S. Small Business Administration, Office of Advocacy, Small Business Data Base, unpublished data.

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[3] The file is usually dated December 31 of each year. It should be noted that the Dun and Bradstreet files are updated on a daily basis, reflecting changes reported to the Dun and Bradstreet field offices. Each establishment record within a file contains the name and address of the establishment, a DUN's number (a unique identifier), employment at the location identified in the address, Standard Industrial Classification code, and data linking the establishment to its owning enterprise. An enterprise is defined as a business organization consisting of one or more establishments under the same ownership or control. The terms "firm" or "company" are used interchangeably with "enterprise." For a full description see the State of Small Business, March 1984, Appendix C: The Development of the Small Data Base: A Progress Report

The small change in the number of establishments in the file masks the much larger dimensions of the gross flows of births and deaths of establishments which produce the net change. Table 2 shows births and deaths of establishments relative to the number of establishments surviving through the period.

Table 2. Establishment Births, Deaths, and Survivors for Selected Time Periods

Time Period	Initial Population of Establishments	Establishments Deaths	Surviving Establishments	Establishment Births	Final Population of Establishments
1976-1978	4,280,809	-702,494	3,578,315	838,559	4,416,874
1978-1980	4,416,874	-390,255	4,026,619	526,054	4,552,673
1980-1982	4,552,673	-514,984	4,037,689	686,029	4,723,718
1976-1982	4,280,809	-1,269,142	3,011,667	1,712,051	4,723,718

Note: The sum of the births (deaths) over the two-year period does not equal the number of births (deaths) shown for the six-year period from 1976 to 1982. An establishment born in 1977, for example, would be counted as a birth in the 1976-1978 period. If the establishment died in 1979, it would not be listed as a birth in the 1976-1982 calculation. (It would show as a death in the 1978-1980 period.) The 1976-1982 births represent establishments not in the file in 1976, but in the file in 1982. Deaths for 1976-1982 represent establishments in the file in 1976, but not in the file in 1982.

Source: U.S. Small Business Administration, Office of Advocacy, Small Business Data Base, unpublished data.

The gross flows of births and deaths are much larger than the net change. The number of deaths in any time period gives sample evidence of the riskiness associated with business ventures.[4]

The number of business births may be explained by a number of factors, both positive and negative. Positive changes in the rate of growth of GNP are associated with increases in the number of business startups, for example. An increase in the unemployment rate may also be associated with an increase in perhaps a more important way to view business startups and business deaths is as a reaction to unexpected changes in the state of the world. A shift in consumer tastes or preferences, for example, will create a demand for new or improved goods or services which may be met by existing firms or by new (primarily small) businesses. Technological change may also precipitate new businesses whether directly or indirectly. The development of micro chips and micro-computers, for example, provided opportunities for small businesses as manufacturers, as assemblers, as software developers, as distributors of computers and related products, as producers of maintenance and repair services, and as producers of consulting services which help consumers exploit the power of the basic innovation.[5]

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[4] Note that the data presented here refers to establishments and not to the owning enterprises. Most analysts would prefer to carry out the analysis in terms of births and deaths of enterprises. Establishments are used here for several reasons. First, for small enterprises having fewer than 20 employees, the terms enterprise and establishment usually refer to the same entity, i.e., a single-establishment enterprise. Second, when considering the effects on a local community of a business birth or death, it is probably immaterial whether it is an establishment or an enterprise change that is occurring business startups. Because unemployed individuals have no wages to give up, their cost of starting a business is lower than the cost to an individual who must give up other work on a voluntary basis.

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[5] Professor David S. Landes referred to this phenomenon as a "challenge-response paradigm" in which the initial innovation establishes a demand for additional innovations. If the additional innovations are forthcoming, we experience economic development. Professor Landes applies his hypothesis to the Industrial Revolution in Unbound Prometheus: Technological Changes and Industrial Development in Western Europe from 1750 to the Present, Cambridge University Press, Cambridge, England, 1969.

The births and deaths of businesses have clear affects on the supply of goods and services provided by particular industries. In circumstances where demand for the output of a particular industry is highly variable, expansion or contraction of output by existing firms might be sufficient to accommodate all of the change needed to meet a shift in demand. If this were true, then there would be no new births of firms, nor would there be any exits (through closure) of existing firms. The evidence cited below suggests that demand fluctuations, such as the changes in demand encountered in a business cycle, or demand shifts, such as those produced by innovations or by changes in consumer tastes and preferences, are met by a combination of births and deaths, and expansions and contractions, of businesses. Table 3 shows what happens to establishments which survive for different periods of time.

Table 3. Number of Establishments Which Survived for Differing Periods of Time Categorized by Type of Employment Change for Each Establishment

		Number of Establishments With		
	Establishments Surviving Through Period	Expanding Employment	Contracting Employment	Constant Employment
1976-1978	3,578,315	936,075	553,972	2,088,268
Percent		26.2	15.5	58.4
1976-1980	3,305,144	1,141,102	730,603	1,433,439
Percent		34.5	22.1	43.4
1976-1982	3,011,666	1,217,554	811,583	982,529
Percent		40.4	26.9	32.6

Note: Percent detail does not add to 100 because of rounding.

Source: U.S. Small Business Administration, Office of Advocacy, Small Business Data Base, unpublished data.

The numbers in Table 3 confirm the extent of the dynamic changes occurring in the economy. As one looks down the columns in the table, all of the changes appear to have the "correct" dimensions. The longer the time period involved:

> the fewer the number of establishments surviving to the end of the period;
>
> the smaller the number of establishments showing constant employment over the entire period;
>
> the greater the number of establishments showing a positive or negative change in employment.

Change is clearly the norm for the typical establishment in the American economy. Does the extent of change vary by size of firm? The proportions of change are remarkably consistent across size class of enterprise. The major differences observed by type of employment change may even run somewhat against intuitive expectations. In Table 4 below, larger enterprises with more than 100 employees show a greater proportion of establishments generated by birth of new establishments than do smaller enterprises.

Most births of establishments in small enterprises with fewer than 100 employees represent new single-establishment enterprise startups, i.e., actual new business births; most establishment births in large enterprises represent additions to already existing enterprises, with very few new enterprise startups.

Total New Establishment Startups 1976-1982 Classified by Fica Employment Size and Type
(Percent of Base Year Population)

Type of Establishment	Total	20	20-99	100-499	500+
Independent	24.5	33.9	22.3	14.4	6.5
Affiliated	31.7	43.3	33.9	34.9	30.5

Clearly, large existing firms find it easier to generate new establishments.

Relatively more establishments owned by smaller enterprises (fewer than 20 employees) show constant employment, and relatively fewer show contracting employment (Table 4). Establishments owned by larger enterprises (more than 500 employees) appear to exhibit contracting employment or constant employment less frequently than do establishments owned by enterprises in other size classes. Differences in establishment birth rates appear to be the most significant differences between enterprise size classes. Constant employment establishments are relatively infrequent no matter what size of establishment is being considered.

The overriding conclusion from the data presented in this section is that change is the norm for American business. The birth and death of businesses, and the change in employment levels within existing businesses, may reflect only factors internal to each business, i.e., the management capability of the entrepreneur. Chances are, however, that the behavior of the business is strongly influenced by factors outside the firm such as the level of demand for the product or service produced by the firm, or the degree to which demand fluctuates in some (relatively) unpredictable fashion. The next section explores two possible explanations for how small businesses cope with unpredictable changes.

Table 4. Number of Establishments by Employment Size of Firm and Categorized by Type of Employment Change for Establishments Existing in 1976 or Born Between 1976 and 1982

	Establishments, 1976-1982				
Employment Size of Firm	With Expanding Employment	With Contracting Employment	With Constant Employment	Born During 1976-1982	Total Establishments 1982
Total	**1,217,554**	**811,583**	**982,529**	**1,712,052**	**4,723,718**
Percent	**25.8**	**17.2**	**20.8**	**36.2**	
0-19	929,008	592,317	808,307	1,295,751	3,625,383
Percent	25.6	16.3	22.3	35.7	
20-99	153,659	130,474	89,045	171,316	544,494
Percent	28.2	24.0	16.4	31.5	
100-499	54,462	39,066	32,861	86,396	212,785
Percent	25.6	18.4	15.4	40.6	
500+	80,425	49,726	53,316	158,589	341,056
Percent	23.6	14.6	15.6	46.5	

Source: U.S. Small Business Administration, Office of Advocacy, Small Business Data Base, unpublished data.

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TWO POSSIBLE EXPLANATIONS

Consider for a moment how small businesses operate in a given product or service market. As with any business, a small business will be started when an entrepreneur perceives the existence of a demand for a product or service which he (she) can meet while making a reasonable profit.[6] The entrepreneur organizes resources including labor, plant and equipment, materials, cash, and information, to produce the given product or service. If the product or service under discussion is a real innovation, i.e., there are no existing products or services that are identical or are close substitutes, then the innovating firm, if it has correctly anticipated the market demand, will earn economic profits. Other firms observing these profits will choose to enter the industry, expanding supply, and lowering economic profits. Entry will continue until the returns earned by the last firm entering the industry are equal to the expected return on other investments with similar risk characteristics.

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[6] The reference here is to profit as defined by accountants, i.e., a residual return available to the entrepreneur after all out-of-pocket costs are accounted for. Economists relate this "profit" to an expected rate of return on the time or money invested in a project, reserving the concept of "economic profit (or loss)" for the unexpected return (loss) above or below the expected rate of return. Ignoring entrepreneurial time for a moment, if an entrepreneur could invest capital resources (dollars) into a variety of investments and earn a rate of return (interest or dividends) of 10 percent, then economic profit is the 5 percent return over and above the 10 percent available in other investments. Accounting profits would be 15 percent in this example.

The more typical case for a small business is that the small business enters an industry in which there are already a number of existing firms, both large and small. The entering firm may produce products or services identical to those already being produced, or it may produce a close substitute. The basic reason for entry, as in the first case above, is the perception by the entrepreneur that there is a demand which is not being met in the marketplace.[7]

Suppose demand for the product produced by the industry in this typical case is relatively constant or changes only slowly and predictably over time. In such a situation we would expect to find a given number of firms, some small and some large, each with a given share of the market.[8] There would be some entry and some exit from the industry over time as particular firms in the industry run through a typical life cycle and new firms replace older firms which have lost their competitive edge. All firms in the industry would earn normal profits, i.e., there no excess returns luring large numbers of new firms into the industry.

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[7] The reason for entry could also be a technical innovation which lowers cost of production. The entering firm could then anticipate that it could enter the industry and survive by lowering price and driving out higher-cost competitors.

[8] The observation about the size distribution of firms, i.e., "some small and some large," is an empirical observation. Basic economic theory has had little to say about the expected distribution of firms by size. Several recent papers do provide some insight, however, e.g. Oi, Walter, "Heterogeneous Firms and the Organization of Production," The Hoover Institution, Stanford University, April 1982.

Now suppose that the world becomes a little more complex (some non-economists would use the word, realistic). Suppose that the demand for the product or service produced in the industry fluctuates on some random basis, so that it is difficult for any firm to predict what demand will be at a point in time. What can be said about the behavior of the small firms in the industry relative to large firms? How would small firms adjust output levels in this complex situation? Consider two possible cases. First, how would existing small firms adjust output given existing productive capacity in the industry? Second, how rapidly would small firms adjust capacity, given a period long enough for new plant and equipment to be put in place?

HOW DO EXISTING FIRMS ADJUST OUTPUT IN RESPONSE TO FLUCTUATING DEMAND?

David E. Mills and Lauren Schumann of the University of Virginia [9] argue that existing small firms would adjust output levels more extensively and more rapidly than large firms. This greater adjustment capability exists because of fundamental differences in the way in which small and large firms organize and adjust resources to produce products or services, given fluctuating demands for outputs. Mills and Schumann point out that larger firms use relatively more capital, per unit of output, than do small firms. Moreover, the capital used by large firms tends to be more specialized, and, therefore, more difficult to shift from one productive use to another. Because the capital equipment used by large firms is so specialized, large firms do generally achieve scale economies allowing them to produce at lower average costs than smaller businesses.

Smaller businesses would be unable to survive, if large competitors were able to consistently undercut the small business price for similar goods or services.

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[9] Industry Structure With Fluctuating Demand, American Economic Review, forthcoming, 1985.

Small businesses do have an offsetting advantage. Because small businesses use more variable inputs, i.e., labor; use less capital per worker, and use less specialized capital, small businesses are more "flexible" than large businesses in adjusting output levels to meet fluctuating demands.[10] Simply stated, large firms may be able to produce at relatively low cost at the level of production for which their plants are designed. Higher or lower production levels may entail significantly higher costs of production. Smaller firms, using different production technologies, may produce at higher minimum average costs, but may be able to adjust output levels up or down over some wider range of output without significant changes in average costs. Small firms, therefore, may absorb industry-wide output fluctuation, while large firms exhibit more stable levels of output than the industry as a whole. Small firms in certain industries may be able to coexist with larger firms, even though larger firms are, in a limited sense, more efficient, because product demand does fluctuate unpredictably.

HOW IS OUTPUT ADJUSTED THROUGH EXIT AND ENTRY OF FIRMS?

Existing firms faced with fluctuating demands can adjust output levels by adding or deleting labor, by adding second or third shifts, or by making related production adjustments such as speeding up existing production lines. Output levels can also be adjusted by the entry and exit of firms. It was argued earlier that small firms choose production technologies that produce a cost advantage relative to large firms in adjusting output with given levels of plant and equipment. Small firms may also be more capable of adjusting output by entering or leaving an industry in response to demand fluctuations and related investment opportunities. Small businesses appear to have an advantage in moving in or out of given production situations because small businesses work with higher proportions of variable inputs than do large businesses producing similar outputs.[11] These variable inputs, which include labor, raw materials, and intermediate products are more mobile (i.e., can be more easily shifted to other productive opportunities) than similar resources used by larger businesses.[12] Even the (relatively) fixed inputs, such as machinery, used by small businesses may be more easily shifted if demand fluctuates, or if more productive investment opportunities become available. As noted earlier, one reason firms become large is to capture scale economies which lower production costs. Large firms, therefore, frequently purchase more specialized machinery which is relatively efficient in one production situation, but which may not be easily switched to other production opportunities. Smaller firms often buy less specialized or more standardized machinery which can be used in a wider variety of production settings. A larger proportion of small business equipment, for example, is purchased in used equipment markets. Correspondingly, if life becomes untenable for a small business, more standardized equipment can be more easily sold in a used equipment market.

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[10] The concept of flexibility was first described by Nobel Laureate George Stigler in "Production and Distribution in the Short Run," Journal of Political Economy 47, (1939) 305-27.

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[11] The hypothesis discussed here is currently being examined by Professors Steven Lustgarten and Stavros Thomadakis of Baruch College, City University of New York, under contract number SBA 7153 OA-83. The discussion in this section draws heavily on their preliminary proposal and on their progress reports on the subject of "Firm Size and Resource Mobility."

[12] Even when we compare similar resources or inputs, the small business is likely to use a more mobile variant than the large business. Small businesses generally use smaller proportions of highly skilled or specialized labor than do large businesses. Specialized labor, which frequently derives much of its value from skill training specific to the firm or industry in which it is employed, may have fewer employment opportunities available outside the industry. Relatively unskilled laborers may find more opportunities available if a switch has to be made.

It should be clearly understood that the small business advantage in moving into or out of production opportunities is a function of the uncertainty associated with doing business in the real world. If changes in demand or in technology took place in a predictable way, allowing for careful planning and adjustment of resource utilization, there would be no reason for small businesses to have an advantage. Indeed, large businesses might well be able to manage the adjustment process more effectively.

Using the Small Business Data Base, it was shown earlier that the level of entry and exit through the birth and death of establishments was quite high. Fully 36 percent of the establishments existing in 1982 did not exist in 1976 (see Table 4). Similarly, 29.6 percent of the establishments existing in 1976 did not survive to 1982 (see Table 2).

The argument presented here is simply that the numbers of observed establishment births and deaths reflect the uncertainty which exists in many industries and sectors of the economy. The ability of small businesses to adjust resource usage quickly, either by increasing or decreasing output, or by entering or leaving an industry (through birth of a new firm or death of an existing firm) represents a major contribution of small business to the efficient functioning of the free-market economy in the United States. Small businesses have often been put down because they exhibit the very characteristics described above. It is true that some small businesses don't survive; nor do the jobs these businesses create. Small businesses do use more relatively unskilled labor, and pay lower wages. Small businesses (in a narrowly-defined static sense) are less productive than large businesses. In a world characterized by unexpected change and uncertainty, however, these perceived "disadvantages" may well be important "advantages" enabling small businesses to move resources from less productive situations to more productive situations.

The conclusion stated here, that small businesses adjust relatively quickly to unexpected changes in conditions external to the business may represent the "ultimate" argument for the existence of a large and viable small business sector in the American economy. The behavior of small businesses seeking profits by finding and exploiting productive opportunities may be a large part of the "invisible hand" which Adam Smith cited as the moving force in a free enterprise economy.[13]

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[13] See Adam Smith, "The Wealth of Nations, Modern Library, Cannon edition, Random House, N.Y., N.Y. 1937, p. 423.

"COMPLEXITY AND DISEQUILIBRIUM: HOW CREATIVITY, ENTREPRENEURSHIP, AND THE ECONOMY COME TOGETHER"

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ABSTRACT

This paper argues that entrepreneurship is a response of a particular inner condition to a particular and conceptually similar environmental condition. The state of the world mirrored in the state of the entrepreneurial person is that of disequilibrium. This is also the missing link between the economics and psychology of entrepreneurship. Implications to public and corporate policy toward entrepreneurship are drawn.

I. INTRODUCTION

One of the more fundamental problems in the research about entrepreneurship is the gap between the micro and macro approaches to the subject. On the macro level, research concentrates on the effect of entrepreneurship on economic growth and on the formulation of policies to stimulate the supply of entrepreneurs. On the micro level, researchers of entrepreneurs map the personality and motivation of the individual entrepreneur through standard tests and interviews. The macro studies are usually done by economists who see little need to explore the psychological roots of entrepreneurship as a way to design economic policies aimed to encourage entrepreneurship. The economist's assumptions of perfect rationality and utility maximization with money as the sole argument in the utility function lead to the conclusion that monetary incentives (such as providing venture funds by the SBA or cutting taxes) are all that really matters. Mind you, this is not to deny the value of such policies but to point out that at best, this is only half the picture. Simplistic models usually lead to simplistic implications. The micro research, on the other hand, is carried mostly by behavioral scientists who see little value in investigating the relation of creativity and entrepreneurial traits on the individual level to the macro phenomenon of entrepreneurship and the general economic environment. Thus, economists ignore the individual, psychologists ignore the macro phenomena, and there is a clear need to bring the two perspectives together in order to be able to answer the question: How can we encourage entrepreneurship?

In this paper I will attempt to show that the bridge between the psychological and economic approaches, between the micro and macro perspectives, is in the concept of disequilibrium. I will claim that the concept is also the link, or the common root, of creativity and entrepreneurship and that understanding this link between the individual and the environment can lead to a better understanding of what need or need not be done to stimulate entrepreneurship on the macroeconomic level, as well as the level of the firm. My argument

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will be based on the fact that entrepreneurs are the "children" of disequilibrium in the economy. At the same time, and not less poetically, Frank Barron, in his seminal work on creativity, suggested that creativity is rooted in a perceptual decision to attend to the disequilibrium aspect of the world. As he put it: "The sometimes disordered and unstable world (of the creative person) has its counterpart in the person's inner discord." (1, p.199) But just as the response to the economic disequilibrium is a creation of a higher order equilibrium by the entrepreneur, the response of the creative person to the internal and external disorder is "a constant effort to integrate the inner and outer complexity in a higher order synthesis." (ibid)

The correspondence between the response to an economic disequilibrium and the response to the personal disequilibrium is not coincidental. Many of the correlates of the "disequilibrium personality" found by Barron among creative people seem to exist in entrepreneurs. For example, the more obvious ones are: rebelliousness, rejection of outside control, impulsiveness, independence and dominance. I will return to these correlates later on.

This paper consists of four parts. The next two sections discuss the concept of disequilibrium in economics and in psychology. Section IV then links creativity and entrepreneurship with the help of the discussion in the previous sections and elaborates on some of the personality correlates. Section V then relates it all to the question of the relation between entrepreneurship and the economic environment and the issue of of public policies to encourage entrepreneurship, and offers some tentative recommendations subject to empirical verification of the thesis in section IV.

II. DISEQUILIBRIUM IN ECONOMICS

In economics, disequilibrium refers to the state where the plans of the various market participants are not perfectly coordinated (4). It is exhibited in its more striking form in the case of shortages and surpluses (i.e., markets which do not clear) and in the less obvious way in any instance of lack of coordination. When consumers are willing to pay a price for some output that exceeds the total cost of bringing that output to them, the situation is one of disequilibrium. The discovery of such disequilibrium is the discovery of an opportunity for profit (7). The profit will accrue to anyone who will bring the plans of market participants closer together. Thus, buying X from A at price P and selling it to B who values it at P+e result in improving the lot of A who wanted to sell, B who was willing to buy, and the arbitrageur who foresaw the opportunity. In contrast, in equilibrium there are no profit opportunities. By definition, in a state of equilibrium, a state of perfect coordination, and therefore perfect foresight, all inputs are paid exactly the value of their marginal product, leaving zero economic profit. Thus, when all plans to sell and to buy are perfectly coordinated, no one can benefit from reallocating resources to another use, since the market is already valuing all resources at their most valuable use and at exactly their marginal conribution to the value of the output they help to produce. Therefore, market error in valuation is the basis for profit to be gained from reallocation. In terms of our previous example, if A and B have full knowledge of each other's plans to sell and buy X they will carry the trade at a price of P. A will not find anyone willing to pay more for his "X" (whether X is a finished product or just a factor of production such as labor services) and B will not pay more than he needs to get X. The profit that existed due to ignorance, i.e., the profit from bringing together A and B disappeared in equilibrium.

It is clear by the definition above that in our imperfect world we are hardly in a state of equilibrium. Opportunities for profitable reallocation, or better coordination, always exist, even in the most "stable" segments of the economy simply because of errors or ignorance of valuation of the market players. Furthermore, changing consumer preferences and the mere existence of unrealized preferences always present a continuous disequilibrium.

The individuals who discover these opportunities and exploit them are the entrepreneurs. Thus entrepreneurship is the outgrowth of disequilibrium, and the "ability to deal with disequilibria" as Theodore Schultz calls it (8) or the "alertness to opportunities" as Kirzner terms it (6) is its essence. In the real world, where disequilibrium is the rule, entrepreneurial discoveries of opportunities generate the equilibrating tendency of the capitalistic system. The process of competition which follows entrepreneurial successes tends to raise the price of the resources and lower the price of the output, thus bringing the price closer to its equilibrium level and eliminating the above-normal (i.e.,economic) profit. In this process, resources are reallocated to where their product is valued most by consumers. The ultimate benefit therefore goes to the consumer whose "vote" by purchase is the essence of consumer sovereignty. The process of "growth" implied here is the one associated with elimination of disequilibrium and not necessarily with a rise in some government statistics. It is a truely beneficial growth, since its foundation is a better coordination of peoples' plans and actions.

What makes some people better able to deal with disequilibria (where by "dealing" I refer to the ability to recognize and respond to a given disequilibrium by reallocating resources to take advantage of the existence of profit)? The answer might be found in the psychological conception of disequilibrium.

III. DISEQUILIBRIUM IN PSYCHOLOGY

The concept of disequilibrium I will be referring to in this section is the one used by Frank Barron and his colleagues in their research on creativity. It is the disequilibrium implied in the concept of "complexity in personality" as defined by Barron and by Eysnek's K factor. Though the particular test developed by Barron to measure preference for complexity--the Barron-Welsh Art scale--have come under attack in recent years, the concept of preference for complexity as a personality dimension, as well as other aspects of Barron's research, still present an intriguing theoretical development in the quest for the roots of creativity. In this paper, I am interested in the relation of this personality dimension to the concept of disequilibrium, rather than in the validity of a particular technique to assess it.

Preference for complexity was first discovered by George Welsh who developed a non-verbal or figure test to measure such variables as Hysteria, Schizophrenia and so on. What he found was also a bi-polar factor which discriminated among subjects--a factor of preference for simplicity, associated with the liking of symmetric, obviously balanced figures (or in other words: equilibrium), and preference for complexity, associated with the liking of asymmetry and less obvious balance (or in other words: disequilibrium). These findings resembled those by Eysenck, who found a factor in intelligence he termed K factor which discriminated among stimulus classes by preference for simplicity vs. complexity.

In his 1963 book on creativity, Barron describes a study of 40 subjects who where asked to rate paintings. A clear distinction emerged between those who preferred predictability, stability, balance, symmetry and simple a cardinal rule that could be deduced at a glance, and those who preferred the restless, "moving", asymmetrical and complex paintings.

Further clinical observations confirmed for Barron and his colleagues the existence of a "complex" vs. "simple" personality. The relation of these dimensions to disequilibrium becomes even clearer when one looks at the results of the correlational composite developed by Barron for the two personality types. Thus, preference for simplicity is associated with social conformity, respect for custom and tradition, and as one item on the attitude test revealed, also a "suppression of such troublesome new forces as inventions that would temporarily cause unemployment." (1, p. 196) In summary, Barron characterizes the psychodynamics of the simple personality as oriented toward repression as a psychic mechanism, repression that serves to keep out "all that threatens disorder and disequilibrium." (1, p. 197. Emphasis added) As Barron observed, equilibrium depends essentially on exclusion, on the refusal to see parts of reality that cannot be assimilated into the existing balance.

The complex personality, on the other hand, is associated with the liking of change, unconventionality, awareness of imperfections, and the belief that behind the complexity and chaos lies a higher-order pattern which can be discovered. There is an acceptance of the existence of greater complexity in one's view of "both the outer and the inner world," as well as the "tentativeness about the final form of organization." (1, p. 193)

It is easy to see the parallelism or "fit" between the complex personality with its psychological disequilibrium and entrepreneurship. Since entrepreneurship is the ability to spot disequilibrium conditions and respond to them, a view of the world as full of imperfections, of exhibiting a tentative form, coupled with a liking for change and imbalance, would create exactly the alertness to opportunities as defined by Kirzner: "...eyes and ears open to opportunities that are 'just around the corner'" (7, p.7). An individual who allows into the perceptual system "the greatest possible richness of experience, while yet finding in this complexity some overall pattern" (1, p. 199) is the same "Kirznerian" individual who is "continually receptive to something that may turn up." (7, ibid) In contrast, a simple personality, keeping incongruent input out in order to maintain a world of equilibrium is more likely to overlook disequilibrium conditions calling for the reallocation of resources with its temporary consequences of disorder and change. Thus, in conclusion, I will claim that at the root of the ability to deal with economic disequilibria is a "disequilibrium personality" or a psychological dimension of a disposition toward disequilibrium in the inner as well as the outer world.

IV. DISEQUILIBRIUM, CREATIVITY AND ENTREPRENEURSHIP

Elsewhere (2) I claimed that entrepreneurial acts are by necessity creative. To summarize the argument briefly, it was argued that the act of discovering and exploiting an opportunity for profit conforms to all four requirements, set by Jackson and Messick, for a creative product: unusualness, appropriateness, transformation and condensation. In addition, it was argued that the entrepreneurial act follows the stages of the creative process, from identifying gaps to communicating the results. Moreover, entrepreneurship requires the same thinking skills deployed in the creative act, viz., divergent thinking at the outset and convergent thinking later on.

If my earlier argument was that entrepreneurship is creativity, this paper cements the bond between the two. The theoretical link postulated by the comparison of the entrepreneurial act and the characteristics of the creative product and process receives an empirical and clinically-based support by findings relating the "disequilibrium," or complex personality, to what Barron termed the "disposition toward originality". Not only is entrepreneurial behavior, by definition, a manifest of creativity, but it seems that the psychological root of creativity is in the same personality that is ideally suited for entrepreneurial behavior.

The findings regarding the disposition toward originality emerged from the initial observation that original or creative responses occur regularly in the creative individual, almost as a habit. This observation led to the hypothesis that there must be certain relatively stable traits that facilitate the production of original acts. The hypothesis was tested in a series of pen-and-pencil tests, as well as by a living-in assessment method performed on regularly more original and regularly less original subjects. The results revealed a "general attitude toward experience, of a sort that disposes toward complexity of outlook, independence of judgement and originality." (1, p. 207) Thus complexity in personality significantly discriminated between the more and the less original as measured by several tests for originality and various indicators of preference for complexity.[1]

The existence of a relatively enduring disposition or ability to deal with disequilibrium at the root of creative production immediately raises the question of development and policy implications. Can society affect the growth of this ability? What are the institutional arrangements which are more, or less, attractive to this personality? Though the natural tendency of social scientists is to go out of their way to formulate conclusions that justify interventionist policy, I will claim in the next section that the best policy requires very little active intervention. As a matter of fact, the best policy to encourage the development and expression of the disequilibrium personality is, perhaps, no policy at all.

V. IMPLICATIONS AND FUTURE RESEARCH

Attempts to stimulate creativity and entrepreneurship are not new. Economic incentives are definitely effective, simply because the creation of profit opportunities will always attract someone to take advantage of them. Thus cheap financing, monopolistic licensing, tax advantages and so on broadcast a clear and loud message about the existence of (artificially created) profit to be reaped. There are two problems with these policies, however. First, many of these policies require the tax payer to subsidize entrepreneurial successes (and failures). Second, none of these policies is based on an understanding of how entrepreneurial ability (what I called here "disequilibrium personality") is developed and/or encouraged. The discussion in this paper suggests that policies aimed at stimulating entrepreneurship should be geared toward stimulating creativity in general, since the two share a common psychological root.

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[1] The relation of independence of judgement to the disposition toward complexity or disequilibrium is of particular relevance to the thesis of this paper. In his interpretation of the two constructs, Barron suggests that "only a person who can live with complexity and contradictions and who have some confidence that order lies behind what appears to be confusion would be able (to remain independent)." (1, p. 174) Barron was referring to the famous experiments with the Asch paradigm in which a subject is placed in a relation of high conflict of judgement with all other members of a group. The similarity of this situation to the one faced by the individual entrepreneur who is in conflict of judgement with the entire market which doesn't see the opportunity (otherwise the opportunity would have disappeared) is striking. The point to note is that it is the preference or tolerance of disequilibrium (in this case social) which is at the basis of independence of judgement, an important correlate of both creativity and entrepreneurship. (For evidence on the existence of independence and confidence in judgement among entrepreneurs see Hornaday, in 5.)

In his discussion of the disposition toward originality, Barron claims that the essence of his findings about the factors behind it can be looked at as a thesis about the importance of freedom. By freedom, Barron refers to the range of possible adaptive responses available to the organism in all situations. The greater the repertoire (i.e., the greater the freedom), the higher the probability of a creative response. Freedom, as defined, is intimately related to organization. Organization can generate freedom if it is accompanied by complexity: The more complex is the level of integration or organization, the larger is the range of adaptive responses. Organization, however can also be used to restrict freedom through suppression. Either on the individual (cognitive) level, firm level, or the social/political level, organization can exert control to minimize the disequilibrium associated with freedom and complexity. As Barron puts it: "Originality ... flourishes where suppression is at a minimum and where some measure of disintegration is tolerable in the interests of a higher level of integration which may be yet reached." (1, p.213)

The identification of the root of creativity and entrepreneurship in a preference for disequilibrium implies that on the individual level, the lack of suppression is an essential dimension of the personality. While the essence of the simple personality was the use of exclusion or suppression as a psychic mechanism in order to maintain equilibrium, the complex personality is characterized by the rejection of such mechanisms. It is no more evident than in the finding that complex persons are also high on the trait of dominance. (1, p. 211-212) Dominance can be translated as a strong need for personal mastery, "not merely over other persons, but over all experience." (1, p. 212) It is also the rejection of outside control or regulation in favor of self-regulation. The implication is that the underlying psychodynamics of the personality of the creative and entrepreneurial individual poses a big problem for policy makers in the corporate or political world.

How does one create a climate conducive to entrepreneurship? The discussion above suggests that economic incentives may not be enough. The ability to deal with disequilibrium is intimately related to rejection of regulation by others. For policy makers the implication is that social control of business, as it exists today, is badly suited to encourage entrepreneurship. There is no intention here to deny the importance of defending the consumer or pursuing other worthwhile social goals, but to point out that the haphazard treatment of public regulation, which is usually designed by economists and lawyers, may achieve the undesired goal of stifling entrepreneurship. If creative individuals seek minimum of suppression, they would gravitate toward occupations where the climate is conducive to self control, leaving entrepreneurship to the bureaucrats and their economic advisors. The results are quite predictable.[2]

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[2] In an earlier paper (3) I have developed the argument for a joint control of regulation (the so called partnership approach to regulation) based on the empirical and theoretical link between entrepreneurship and internal locus of control. This paper adds another block to

It is also clear from the previous discussion of the disequilibrium personality that the kind of organization and control in society will have a profound effect on entrepreneurship. At the risk of sounding trivial (or what is even worse for a social scientist: conservative!) it is quite easy to see from the theory developed here the *psychological* relation between an atmosphere of laissez-faire in the economy and the flourishing of entrepreneurial behaviors (in addition to the obvious economic correlation). The implication is that the best policy to encourage entrepreneurship is no policy, or more accurately, minimum *intervention*. All that the entrepreneurial personality needs is the existence of disequilibrium and the *freedom to seize upon it* for the sake of personal profit. If the freedom is granted, the benefit would go to us all.

On the corporate level, the thesis presented here is not conducive to the claims that there exists an easy method of establishing entrepreneurial or venture management within a corporation. Though the subject of internal corporate entrepreneurship is outside the scope of this paper, I will just note that the ability of a typical corporation to tolerate disequilibrium is quite low and there is no quick answer to the problem of how to accommodate the entrepreneurial type's demonstrated need for freedom. The creation of a separate entrepreneurial module might be necessary simply as a defensive measure, not for the intrapreneur, but for the corporation's top management, to prevent them from coming too close in contact with a disequilibrium organization (of the individual who is heading it *and* the unit itself), a situation *they* would not be able to tolerate. But beyond the obvious separation of controls, there must be a serious and detailed planning of the relation between the rebellious, complex person and his/her simple, stable, traditional antithetical bosses.

One area in which the current argument has "positive" implications is that of the research to identify potential entrepreneurs. If the theoretical reasoning of this paper is convincing, then there is a wide scope for empirical research on the link between entrepreneurship and preference for complexity or disequilibrium. Many of the attributes of the entrepreneurial personality surveyed in the literature can be shown to relate to a more basic disposition toward disequilibrium. There is a clear need for developing new and more powerful tests for measuring this disposition, but the finding of such instruments should prove very rewarding. After all, the marriage of economics and psychology should be profitable to any entrepreneurial scholar...

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the strength of the earlier claim.

VI. SUMMARY AND CONCLUSIONS

This paper hypothesizes that a particular psychological dimension--a preference toward disequilibrium in the inner and the outer world, which seems to be associated with creativity--is also the basis for entrepreneurial behavior. The correlates of this personality dimension include independence of judgement and a need for internal control, two qualities which in a general way are negatively related to the degree of control in a given institutional arrangement. The implication is that a climate of free market (on the level of the economy and perhaps the firm, too) is not only economically the best for entrepreneurship but psychologically as well. Instead of subsidies and regulation, which are the current policy tools used to encourage and control entrepreneurship, society and organizations should devote some thinking to ways to _minimize intervention and control_, while still maintaining their goals, as a _new agenda for growth and progress_. This is admittedly a radical shift from the reflexive call for more intervention advocated by the majority of contemporary social scientists and policy makers. This shift is based on the belief, argued for by Hayek many years ago, that the uninhibited meeting of the minds of millions of free, and I will add, creative individuals can achieve social coordination on levels which are impossible for the wisest group of bureaucrats and their most educated advisors.

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B) AN EXAMINATION OF HIGH TECHNOLOGY INNOVATIONS AND EXPORTING POTENTIAL OF ENTREPRENEURS

"STIMULATING HIGH TECHNOLOGY INNOVATIONS"

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ABSTRACT

There is more to innovation than simple invention. Not only must the technological entrepreneur have something new, he or she must also have something that meets the needs of users, and must somehow be able to produce a product and get it into the hands of consumers. Consequently, there is more to stimulating innovation than simply stimulating inventiveness. Fostering high tech innovation requires that the entrepreneur look beyond purely technical concerns.

This paper examines the implications of three questions that the technological entrepreneur should raise: (1) Do we have -- or can we develop or obtain -- an invention that addresses a given problem?; (2) Is the invention useful?; and (3) Can the invention be commercially exploited?

INTRODUCTION

American entrepreneurial activities in high technology areas have captured the imagination of the world. Teams of foreign visitors continuously visit such high tech Meccas as Silicon Valley, Route 128, Research Triangle, and Austin, Texas to see how it is that Americans are consistently at the forefront of high tech entrepreneurial efforts.

American companies and the Federal government are aware of the fact that maintenance of a leading role in high technology entrepreneurship does not come automatically. Globally, there are many enterprises that are developing the technological capacity to enter into the ranks of high tech leaders. The most serious threats to the American leadership position come from Asia, where countries such as Japan, Korea, Taiwan, and Singapore have demonstrated an ability to take new technological developments and commercialize them very successfully. Additional threats arise out of Europe and a number of newly industrialized countries -- e.g., Mexico and Brazil.

A key to a high tech company's survival is often its ability to be innovative. Can companies foster technological innovation? The answer is yes, but to do so, it is important that they understand what innovation entails.

INVENTIONS VS. INNOVATIONS: A CRITICAL DISTINCTION

Consider the following hypothetical case:

Alpha Enterprises is a small manufacturer of computer disk drives. In a meeting of the company's top officers, a consensus emerges that the company's sales will be modest into the forseeable future unless it becomes more "innovative." A decision is made to triple R&D expenditures over the next two years in order to come up with a dramatically superior disk drive.

After two years, a significantly improved disk drive is created. The company goes heavily into debt in order to finance production of the new drives. Finally, they are ready to be marketed, and only now does Alpha's management recognize there is no way in which to effectively get the disk drives to the intended customers. That is, Alpha's market distribution channels are inadequate to the task at hand. Six months later, the company is on the verge of bankruptcy. Globus Enterprises, a large multinational, buys them out, markets the new disk drives, and makes a small fortune from them.

This case illustrates a lesson that is widely recognized in theory, but frequently overlooked in practice: that is, one should not confuse inventions and innovations. Inventions are the product of technical effort. If a man or woman labors for eight weeks to develop a better mousetrap, the mousetrap that is the end product of this undertaking is an invention. Innovation entails taking the invention and putting it to use. Most definitions of innovation also stress that it involves the commercialization of an invention.

Innovation here will be defined as something that is:

- new
- useful (i.e., it has an application that is in demand)
- commercially viable (i.e., there is a market for the invention and this market can be reached)

Thus the mousetrap becomes an innovation when it is new and useful and someone develops it into a marketable product.

In the case of Alpha Enterprises, top management was probably correct in assessing that the future well-being of the company was tied to its developing more innovations. However, its actions in achieving more innovation focussed entirely on becoming more inventive. Alpha Enterprises fell into the common trap of confusing inventiveness with innovativeness, and in the end, although it demonstrated that it was technically quite clever, it went out of business.

For the most part, American companies do not have serious problems with inventiveness. New discoveries are constantly being generated, as is reflected in the fact that the U.S. patent system contains over four million patents, with American inventors generating 30,000-40,000 new patents each year. We face a different situation with innovation, however. It is typically far more difficult to make money from an invention than to come up with the invention in the first place. No one is more aware of this fact than entrepreneurs who are starting up new high tech ventures. In a study undertaken by Myers and Sweezy, the authors found that none of the new ventures associated with their sample of 200 unsuccessful innovations failed because of technological shortcomings.[3] In fact, it is not uncommon for entrepreneurs to have the technology in hand before launching the new venture. Where they go awry is in financing the new venture and marketing the product.

THREE FUNDAMENTAL QUESTIONS FOR HIGH TECH INNOVATION

Companies that are trying to become more technologically innovative can profit by asking themselves the following three questions. These questions correspond to our definition of innovation as something that is new, useful, and commercially viable.

- o Do we have -- or can we develop or obtain -- an invention that addresses a given problem?
- o Is the invention useful?
- o Can the invention be commercially exploited?

Each of these questions will be addressed briefly.

ACQUIRING AN INVENTION

The first of the three questions addresses the issue of acquiring an invention that serves as the centerpiece of the innovative effort. There are many ways in which entrepreneurs can get hold of exploitable inventions. Typically, these different ways fall into one of two broad categories: entrepreneurs can develop inventions themselves through their own research and development (R&D) efforts, or else they can obtain them from someone else (e.g., through licensing).

If a company decides to generate its own inventions, then questions may arise about creating an environment to improve inventiveness. Many things can be done here. We will examine only a few of the approaches frequently employed to create an atmosphere that is conducive to fostering inventions.

Increase exposure to new ideas, both inside and outside the organization

Studies of creativity suggest that people often come up

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with creative solutions to problems after they have been exposed to ideas and phenomena that are new to them. The rationale here is that when we develop expertise in a particular area, we frequently become slaves to the common wisdom -- what Kuhn calls the normal science paradigm [2] -- of what is and is not possible. By periodically exposing ourselves to new and/or different approaches, we can profitably step out of the confines of our disciplines. There are a number of ways we can broaden our perspective:

1. *Create multidisciplinary teams*. A major contribution of multidisciplinary teams is that they bring people together who operate according to different points of reference. A molecular biologist in such a team is unlikely to worry about violating some sacred truth in physics. By the same token, the physicist in the group may dare to offer suggestions that would be anathema to a tried-and-true molecular biologists. With multidisciplinary teams, team members who are ignorant of the prevailing wisdom of different disciplines dare to suggest solutions to problems that experts might never consider.

2. *Establish a library and encourage workers to browse through the publications it contains*. Most bosses abhor the thought of their workers doing anything but clear-cut billable tasks. However, if they are concerned with developing a creative work force, they should be willing to give their technical staff some time -- say, ten percent of their work week -- to let their minds wander freely. One effective way to do this is to create a small library of books and periodicals that is physically located in the company. The materials contained in the library should be far-ranging, and not simply limited to the narrow area in which the company functions. Staff should be encouraged to visit the library periodically and to read whatever interests them.

3. *Hold periodic colloquia*. Every now and then, hold colloquia where staff members can discuss their work before their colleagues in the organization. Attendees should come from all parts of the company. Everyone should be encouraged to participate in the proceedings. Such colloquia allow the presenters to test their ideas on intelligent critics and to obtain feedback and insights that they might not otherwise get. In addition, they expose attendees to new areas of ideas and may stimulate creative thoughts in them.

Colloquia can also be held where the guest speaker is an outsider. In this instance, staff members can get a good appreciation of work taking place outside of their organization.

4. *Encourage staff to attend outside meetings and seminars*. A major enemy of creativity in organizations is intellectual inbreeding. In the past, American firms have

been noted to suffer from what is called the "not-invented-here" (NIH) syndrome, where company staff are ignorant of developments occuring outside the organization. By going to outside meetings and seminars, staff can pick up useful technical information and, in addition, minimize intellectual inbreeding.

5. *Encourage staff to continue their formal education*. People who work in technical areas find that the knowledge they possess becomes obsolete in a very short period of time. One way to combat this obsolescence is to have staff continuously take formal courses in a university or high quality training environment. As in the case of attending outside meetings and seminars, such coursework provides staff with useful information and also works against the NIH syndrome.

Offer recognition for excellent technical work

A strong motivating force for technical people is peer recognition. That is, scientists and engineers take great pride in having fellow experts recognize their contribution to advancing knowledge, solving a difficult problem, building something solidly, etc.

Scientists -- whose primary concern is with advancing knowledge -- attain recognition by publishing their findings. A company wishing to keep scientist morale high and desiring to encourage state-of-the-art research should encourage its staff to publish their research findings in peer reviewed journals. This will enable staff scientists to attain some peer recognition for their work. It will also enable them to obtain valuable feedback from other scientists on technical aspects of their research. Management may be reluctant to pursue this course of action out of fear that the published research will allow competitors to keep tabs on the company's research effort. There may be merit to this view in specific cases. However, it should be recognized that a scientist may not be able to maintain first-rate abilities if his work is cloaked in a fog of secrecy.

With engineers, who often work with proprietary technology and who typically are more concerned with making things than with advancing knowledge, publication frequently is not a viable mechanism for attaining recognition. In this case, a company can provide recognition for excellent technical work through an awards program. Each year a number of awards can be offered to several scientists and engineers whose work has been exemplary. These awards give the recipients a measure of prestige among their fellow workers and suggest to the recipients that management appreciates what they are doing.

Employ creative problem-solving methodologies

Managers have long desired to have their employees be more creative in their attempts to solve problems. The rub is that

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very few people are inherently creative. In response to the need for increased creativity, a large number of different techniques have been developed to induce creative problem solving abilities in people who are not particularly creative. These techniques fall into one of two categories.

One set of techniques -- e.g., morphological analysis, needs research, attribute analysis, and bionics -- employ a logical approach to inducing "creative" responses to problem-solving. They typically require the problem-solver to systematically consider a whole range of solutions that he or she might not otherwise consider. For example, suppose an individual wants to determine various possible uses for a particular product (e.g., nylon stockings). With attribute analysis, he would ask himself a series of questions of the following nature:

- What would you have if you enlarged the product?
- What would you have if you shrank the product to a small size?
- What would you have if you took the product apart?
- What would you have if you recombined pieces of the product in a new configuration?
- What would you have if you stood the product on its head?

These questions force the individual to look at the product in ways that he normally would not consider. In so doing, the individual will likely come up with more "creative" alternatives than he would without employing attribute analysis.

A second set of techniques -- e.g., brain storming, lateral thinking, synectics -- draw their inspiration from the fact that many truly great creative breakthroughs occurred in a disjointed, non-logical fashion. Often, the breakthroughs were made when the individual's thoughts had wandered far from the problem at hand. There are a number of well-known stories of scientists taking their creative leaps while shaving, dreaming, bathing, etc.

Synectics and lateral thinking are two well known approaches that try to tear the individual away from a logical approach to problem solving. Their principal drawback is that they are difficult techniques to implement. Both require that the creative problem-solving sessions be run by facilitators who are well-trained in the techniques. Brain storming similarly eschews logic and encourages people in a group to come up with wild, spontaneous ideas -- the wilder, the better. A nice feature of brain storming is that it is easy to use.[6]

IS THE INVENTION USEFUL?

As was mentioned at the outset of this paper, to have a successful innovation requires more than the development of a clever invention. An additional requirement is that it be useful -- that is, that it fill either an existing or nascent need. With this requirement, we have now entered into the realm of marketing.

Generally, it is difficult to determine whether an invention -- particularly if it is brand new and untried -- adequateley fills a need. Even well-heeled corporate giants, with their elaborate marketing efforts, frequently stumble on this point. One of the most famous examples of this is the case of DuPont's failure with the leather-substitute Corfam.[ ] DuPont undertook an enormously expensive effort to develop Corfam. Market projections suggested that leather prices would sky-rocket and that there would be demand for a cheaper synthetic substitute for leather, particularly in the manufacture of shoes. The development of a respectable leather-substitute was a technological tour-de-force for DuPont scientists. Once the company began manufacturing Corfam, however, it soon became apparent that the market unequivocally rejected it. DuPont made a large, calculated gamble, and lost enormous sums on it. DuPont is by no means alone in its failure. Every major company has at least a closet full of such skeletons.

What can be done to determine whether an invention is useful -- to determine whether it fills a need? As the Corfarm incident suggests, prognosticating user needs can be a tricky business. Frequently, our best guesses are wildly off the mark. Yet, in general, we are better off trying to identify user needs systematically than working in the dark. There are a number of tactics the entrepreneur can follow to reduce the likelihood that his or her invention fails the test of usefulness:

Maintain close contact with users

Von Hipple has shown that entrepreneurs can profit by keeping close contact with users.[7] In the instrument industry, for example, more than eighty percent of commercialized products originate with user suggestions. The rationale for maintaining strong liaison with users is clear: they know better than anyone what their needs are.

How do you maintain close user contact? One of the best ways, von Hipple suggests, is to instruct your sales force to keep their ears open to customer suggestions while they are on sales calls. The problem here is that sales people are typically concerned with one thing: making a sale. Clearly, if they are to become effective channels of user ideas, an incentive system must be established, whereby sales people receive some kind of bonus if they report back on a user-generated idea that ultimately becomes commercialized.

Undertake market research studies

Market research focuses on describing what a potential market looks like. It attempts to answer questions such as: How many people are there that might be interested in buying a product? What is their age distribution, geographic distribution, income distribution, education distribution, racial distribution, etc.? Given this kind of information, the entrepreneur has a better idea of how to tailor his product most effectively to meet perceived market demand. This information is also important in pricing the product, estimating the size and duration of production runs, and projecting future trends.

In general, the most meaningful and detailed market research data is obtained from outside sources, since few new ventures have the expertise to conduct sophisticated market studies in-house. There are a number of problems here. For example, entrepreneurs are often loathe to ask anyone for advice. To do so, they reckon, is a sign of weakness. Another fact that must be taken into consideration is that highly specialized market studies are not cheap. Their high price tag is sure to cause most entrepreneurs to pause before commissioning them.

Of course, entrepreneurs can try to carry out their own market research. In many instances this may be a viable approach. Consider, for example, the entrepreneur who as a university researcher developed an approach, using monoclonal antibodies, for testing to see whether a woman suffers from chlamydia. He left the university in order to start up his own company. Because of the nature of his product, the market for his service was fairly well defined: medical specialists in obstetrics/gynecology, hospitals, and clinical laboratories. He obtained a very good idea of the composition of this market through medical directories and other published material, and so he avoided using outside market research expertise.

CAN THE INVENTION BE COMMERCIALLY EXPLOITED?

So we have a new technology, and by talking to users and undertaking market research studies we know that it fills some kind of user need. The question we now face is: Can we make money off the technology? By raising this question we acknowledge that it is not enough to have a new idea or product and to fill some user need with this product. In order to exploit the technology commercially, we must also be able to:

- o distribute it to customers
- o produce it cost effectively
- o obtain financing to scale up operations
- o service the product once it is in the marketplace

Each of these items is important for an invention to be commercially exploited, and each will be discussed briefly.

Distribution channels

One of the most perplexing questions an entrepreneur heading up a new venture faces is this: How do I get my product out of my shop and into the hands of the user? Brand new ventures typically have few -- or possibly no -- substantive distribution channels. Such channels generally take a long time to establish. They may entail development of: a substantial sales force, a dealer network, a good reputation, a loyal clientele. These things are not accomplished overnight.

The kinds of distribution channels an entrepreneur establishes are dependent on the product or service he or she offers. A medical testing procedure might require the establishment of a sales force that sells the procedure directly to doctors via sales visits to medical offices. In addition, a direct mail approach may be effective in alerting doctors to the existence of the new procedure. On the other hand, a new piece of microcomputer business software would require a different kind of distribution network. Here the entrepreneur might try to get computer and software retail stores to stock the software on their shelves. In addition, he or she might solicit direct mail sales through advertisements in leading microcomputer journals.

Developing a good way to get a new product or service into the hands of customers is of crucial importance to the entrepreneur, and he or she should devote a large amount of time TO this matter. The importance of good distribution channels is evident when we look at a number of very large companies that do not seem to possess even a gram of innovativeness. How do they survive? An important element of their survival is their ability to get their goods and services to customers through long established distribution networks. The most innovative product in the world will not be a commercial success if it cannot be put into the hands of customers.

Cost effective production

New high tech ventures focus primarily on novelty -- a product that will do things in an entirely new way, a process that will reduce waste, and so on. At the earliest stage of an innovation, performance is stressed over cost, so the new product or service typically is relatively expensive. Ultimately, however, cost issues become important. Reduction of costs might be necessary in order to cope with products introduced by imitating competitors, or to increase profit margins, or to increase sales volume. At this point, the entrepreneur must be concerned with efficient production of the product, since efficient production will enable him or her to reduce costs.[1]

New ventures face a number of problems when they try to deal with this issue. One problem is rooted in the fact that cost is a function of the size of the production run. The more items being produced, the lower the unit cost of production. This means that a sizable market for a good must exist to justify larger production runs. With brand new products, market size is usually small, often reflecting the fact that the cost of the product is too high! We have a classic vicious circle here: for costs to be reduced, we need more customers. However, we won't get more customers until costs are reduced. The entrepreneur's dilemma is clear.

Financing operations

As Meyers and Sweezy noted in their article "Why Innovations Fail," the principal cause of failure of new technology based ventures is a shortage of capital [3]. At the outset of the new venture, capital is needed simply to get things started, e.g., to develop the invention, to put together a staff, to purchase equipment, to hire marketing experts.

Once the venture is underway, second round financing is needed to establish production facilities, to pay for promotional activities, etc. Third round financing may be required to expand production capacity so that costs can be reduced. What often happens is that when investors see that they will not receive an immediate return on their investment, they become reluctant to advance further funds to the venture, funds that may be absolutely necessary to produce the new product and bring it to market.

There are many avenues open to obtaining financing for the new high tech venture.[4] Among the more common are informal investors, Small Business Investment Companies (SBICs), private venture capital companies, bank loans, issuance of stock, R&D limited partnerships, and SBA 90% guaranteed loans. The entrepreneur's problem is to convince potential investors that his or her new product or process is worth backing. With untried technology and an untried management, this is very hard to do.

Servicing the new product

Customers are often justifiably concerned about the quality of service they will receive once they purchase a product. This attitude explains in large part the tremendous success of the IBM personal computer. Customers were willing to pay more for an IBM PC because IBM has a good reputation for servicing the products it sells.

New ventures often have problems developing good servicing capabilities. Early in the game, they face severe resource constraints, and they would rather devote their scarce resources to new product development, marketing, and other directly productive activities. To the extent that they develop a good service system, resources are being diverted from other crucial uses.

If entrepreneurs ignore servicing issues, they may be making short term gains at the expense of long term prospects. At the outset, sales of a new product may be very high, because of its novelty. However, once the word gets out that the new product has a high failure rate, and that it is difficult to have it repaired, sales will ultimately drop.

THE CASE OF LARGE ORGANIZATIONS

Up until now, our discussion has been directed at new start-ups. Large organizations are also concerned with stimulating technological innovation. The problems they face, however, are very different from those new start-ups encounter. Interestingly, the chief weaknesses of new start-ups correspond with the principal strengths of large organizations. The very things that are so scarce in the new start-up typically are abundant in the large organization, i.e., human and material resources, an established distribution network, strong production capabilities, name recognition, etc.

By the same token, the strengths of the new start-up correspond to the weaknesses of the large organization. Large operations typically are encumbered with heavy bureaucracies, whereas new start-ups tend to be "lean and mean." Some of the problems with such bureaucracies are that they make the organization slow to respond to threats and opportunities; they lead to inflexibility, since large organizations are geared to standardized procedures and have difficulty coping with deviations from established practice; they do not offer workers high levels of individual responsibility; and they discourage non-conformity, which is perceived to be disruptive These bureaucratic traits are clearly inimical to entrepreneurship.

Large organizations recognize that in order to survive and thrive in fast moving high technology areas, they have to become more innovative. One approach to stimulating innovativeness has recently been dubbed "intrapreneurship." It used to be called "internal venturing" or "venture management." With intrapreneurship, the large organization tries to imitate some of the characteristics of the small start-up. For example, a venture manager runs the venture as if he or she were president of a mini-company. The venture typically is excused from normal reporting requirements, cutting bureaucratic hassles to a minimum. Higher management levels do not interfere with the running of the new operation.

Long time practitioners of intrapreneurship include 3M and DuPont. The 3M approach is the best known, and it has been studied thoroughly, written about, and even filmed.[5] 3M is the largest and possibly the most successful proponent of intrapreneurship. Another highly respected firm -- IBM -- tested the intrapreneurship waters with the development of its personal computer. It was so pleased with the results of this experiment that it expanded its intrapreneurial activities through the establishment of a number of Independent Business Units.

Large organizations also try to stimulate innovation in ways other than intrapreneurship. A number of approaches include:

1. Acquisition. With acquisitions, large organizations can "buy" the creative efforts of smaller ventures. The problem here is that the newly purchased venture may soon become bogged down in the bureaucratic mire of the large organization. The original entrepreneurial staff may leave. After a matter of a few months, the new addition may suffer from the same problems that the large organization was trying to by-pass in its purchase.

2. Venture capital. With the venture capital approach, the large organization purchases an equity interest in a small firm, but behaves basically as a passive investor, careful not to disrupt the small company amblance that gives the small firm its innovative edge. A major motivation for this approach is to provide the large organization with a "window" on the technology of the smaller operation. Should the small company develop an interesting technology, the larger organization may license the technology or purchase it outright.

3. Venture nurturing. With venture nurturing, the large organization invests in a small operation. Unlike the venture capital case, the large organization plays an active role in assisting the small company, providing it with general managerial, production, and marketing expertise.

4. Venture spin-off. Large organizations often have substantial R&D departments that generate large quantities of patented technologies. It is not uncommon for commercially exploitable technologies to sit on the shelf, however, since the large organization lacks the entrepreneurial spirit to bring the new technology to market. In such a case, an approach used by a number of large companies is to nurture the young technology through intrapreneurship, and once the technology looks as if it may provide the basis of a substantial new business, to spin off a small, new company whose primary

responsibility is to exploit the technology. By separating the new venture from the main operations, the new venture can hopefully avoid bureaucratic suffocation.

5. Joint venture. An alternative to acquiring an equity interest in an innovative company is to enter into a joint venture with it. A joint venture is an arrangement where two or more parties acquire an equity interest in a third opertion that they set up. With such an arrangement, the large organization can contribute its production and marketing expertise while the innovative partner can contribute its technology.

CONCLUSION

The stimulation of innovation clearly entails more than increasing inventiveness. Basically, it involves marrying good inventive capabilities with good business practices. Small new high tech ventures frequently are strong in inventive ability, but weak in their business posture. The high tech entrepreneurs running these ventures should recognize that the old adage -- build a better mouse trap, and the world will beat a path to your door -- generally does not hold. Once they build the better mouse trap, they have to produce it and somehow get it into the hands of consumers. Only then will they have taken the steps necessary to convert an invention into an innovation.

Large organizations face a different problem -- bureaucratization. They may find that they have a plethora of interesting inventions developed by their R&D departments and that they have solid production and marketing skills. However, the weight of bureaucracy slows down their response time, inhibits risk taking, drives entrepreneurs from their ranks, and so on. For them, the stimulation of innovation largely requires adopting strategies to overcome the negative effects of bureaucracy.

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"AN EXAMINATION OF EXPORT ATTITUDES AND BEHAVIOR OF HIGH TECHNOLOGY MANUFACTURERS"

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ABSTRACT

Exporting is a complex process for small manufacturers. This study examines the characteristics of exporters in general with particular emphasis on high technology firms. Demographics are considered along with the key factors influencing the export decision, problems encountered initially and factors holding down current export sales.

INTRODUCTION

Persistent merchandise trade deficits, exceeding $100 billion in 1984, have motivated policy makers of all political persuasions to seek new and/or additional means to stimulate American exports. While a variety of avenues have been explored, many have concluded that one virtually untapped source of export potential is American small business. No one including the most staunch small business advocate believes these firms alone are capable of rectifying our merchandise trade problem. However, any contributions they can make will have positive ramifications for the nation and probably for the individual firms involved. Against this backdrop, this examination of high technology manufacturers was segregated from a larger export study.

Though it has been generally agreed that small business could do more exporting, a series of specific related questions quickly arise. How much more? What type of firms have the greatest export potential? Why haven't small firm owners been more active in the first place? What are the attitudes of high tech business owners toward exporting? What are the impediments to exporting? Are public and private institutions adequate to address the unique characteristics of small exporters? How do small firms begin exporting? Comprehensive answers to these questions and others were important, but beyond present capabilities. However, it was felt that by providing data to help focus discussion, more informed public and private decision could be made.

SAMPLING PROCEDURES AND COMPARIBILITY

A sample of 7500 firms was randomly chosen from the roster of the National Federation of Independent Business (NFIB) by selecting every seventh firm from SIC codes 100-149 and 200-399. Initial questionnaires were mailed in July, 1984, like regular NFIB information gathering instruments to show the organization's support and interest in the project. A letter from NFIB President John Sloan accompanied the questionnaire to show its importance. A second mailing 10 days after the initial mailing with another questionnaire was used to increase the response rate. A total of 2430 questionnaires were returned for an overall response rate of 32.4%. Usable returns were selected based on whether the questionnaire was substantially complete. A total of 2283 returns met the criteria which resulted in a 30.4% usable return rate.

Table 1 provides a comparison of the sample to national SIC code data. The sample is similar to the universe except for a higher percentage of metals firms and a lower percentage of food and fiber firms. The reason for the sample deviation is the distribution of NFIB manufacturer members. They are somewhat overrepresented in metals and somewhat underrepresented in food and fiber. But since these are the only significant deviations the sample is concluded to reasonably represent the population.

TABLE 1

MINING AND MANUFACTURING SMALL BUSINESSES
BY SELECTED SIC's:
A COMPARISON OF NATIONAL AND SAMPLE RESPONDENTS

Industry	Small Business[1] N	Sample Respondents[2] N	Small Business[1] %	Sample[2] %
Mining	17,827	133	6.4	5.9
Food & Fiber	43,418	179	15.7	7.9
Wood	40,009	299	14.4	13.2
Printing & Publishing	38,744	285	14.0	12.5
Chemicals, Rubber, etc.	30,579	263	11.0	11.6
Metals	30,996	525	11.2	23.1
Tools & Machines	38,818	226	14.0	10.0
Equipment & Instruments	36,702	251	13.2	11.1
Other	N.A.	122	N.A.	5.3
Total	277,093	2283	99.9	100.0

Source: [1] Bureau of the Census, Department of Commerce, Enterprise Statistics, 1977

[2] Survey conducted August, 1984, by Dr. K. Mark Weaver

Tables 2 and 3 look at employment to further test the sample representativeness. The comparison to the total universe shows a similar size mix with a slight overrepresentation of smaller (5 to 19 employees) firms. The difference is not considered to be significant or to effect the ability to generalize from the sample.

TABLE 2

MINING AND MANUFACTURING BUSINESSES BY EMPLOYEE SIZE

Employee Size	SIC 100-149 (mining) N	SIC 100-149 (mining) %	SIC 200-399 (manufacturing) N	SIC 200-399 (manufacturing) %	Total (Universe) N	Total (Universe) %	Small Business %
1-4	8,840	49.2	101,380	38.6	110,220	39.2	39.8
5-9	2,863	15.9	43,869	16.7	46,732	16.6	16.9
10-19	2,712	15.1	41,871	15.9	44,583	15.9	16.1
20-49	2,187	12.2	40,364	15.4	42,551	15.2	15.4
50-99	744	4.1	17,612	6.7	18,356	6.5	6.6
100-249	368	2.1	10,702	4.1	11,070	3.9	4.0
250-499	113	0.6	3,468	1.3	3,581	1.3	1.3
500 or more	123	0.7	3,633	1.4	3,756	1.3	-
Total	17,950	99.9	262,899	100.1	280,849	99.9	100.0

Source: Bureau of the Census, Department of Commerce, Enterprise Statistics, 1977

TABLE 3

A COMPARISON OF SURVEY RESPONDENTS TO NATIONAL MINING AND MANUFACTURING FIRM BY EMPLOYEE SIZE

Employer Size	Small Business Universe	Survey Respondents
1-4	39.8%	37.4%
5-9	16.9	21.5
10-19	16.1	22.2
20-49	15.4	10.6
50-99	6.6	3.2
100-249	4.0	2.2
250 or more	1.3	2.9
Total	100.0	100.0

Within the sample, 690 exporters were identified. In this group self-classification was used by firms to determine if their product(s) are high technology. This classification resulted in approximately 17 percent of the sample considering their principal product(s) to be a high technology product. Table 4 presents the classifications for the total sample.

TABLE 4

EXPORTERS AND NON-EXPORTERS
BY HIGH TECHNOLOGY CLASSIFICATION

High Technology Product	Exporters (n=690)	Non-Exporters (n=1577)
Yes	16.8%	11.0%
No	79.6	85.3
Don't Know	3.6	3.7
Total	100.0	100.0

DEMOGRAPHIC FACTORS OF SIGNIFICANCE

As noted, this report is based on a larger study which is still being analyzed. Differences in key demographic factors are examined to determine a profile of the "hi-tech" exporter (n=109). Table 5 summarizes these findings.

Table 5 purposefully omits the supporting data for ease of presentation. The discussion to follow provides the information deemed important for decision making purposes. For discussion purposes, firms classified as high technology will be referred to as HT and others will be designated LT.

Nearly four times more hi-tech firms were in the equipment and instruments SIC code than other exporters (50.9% vs. 13.7%). The data shows that export opportunities in this field could be greater than other areas. When number of employees is considered, HT firms are slightly smaller. They are more likely (43.1 % vs. 34.9%) to employ less than 20 people. This employment number would be consistent with the popular image of small garage style operators in technology fields.

Exporting is generally conceded to be a result of "experience" and the common wisdom is to develop home markets first, then export. The HT firms appear to be capitalizing on export potential with less operating experience and with less previous business experience. They are the "new kid on the block" it appears. More HT firms are in the 0 to 5 years experience (18.3% vs. 11.5%) and also in the 6 to 10 year categories (26.6% vs. 18.6%). More striking is the percentage of HT firms which were not in business before the current ownership (69.7% vs. 44%). The HT firms are newer start-ups who appear to be capitalizing on the technical components of the products to grow rapidly.

Annual growth over 25% for the past 5 years is more frequently reported by the HT firms (41.3% vs. 27.3%). The export potential would appear to be a factor in this growth rate.

TABLE 5

SUMMARY PROFILE OF SIGNIFICANT
DIFFERENCES BETWEEN
HI TECH AND NON HI TECH EXPORTERS

Type of Industry	GTR % HT Equip/Instruments
Number of Employees	GTR % HT less than 20
Years Operating Experience	GTR % HT Newer (0-5)
No Previous Business	GTR % HT without prior exp.
Five Year Sales Trend	GTR % HT greater than 25% Growth
After Sale Service	GTR % HT Require Service
Size of First Sale	GTR % HT greater than $50,000
Percent of Annual Sales	GRT % HT more than 5%
MANAGEMENT TEAM:	
(a) Lived Outside U.S.	GRT % HT with 1 or more
(b) Extensive Travel	GRT % HT with 1 or more
(c) Foreign Language	GRT % HT with 1 or more
Exporter Category	GRT % HT "regular" exporter
Geographic Area	GRT % HT to Europe
	Asia
	GRT % LT to Canada
	Caribbean

The need for after sales service is considered to be a restricting factor in exports for small firms. The HT firms required more extensive after sales service and a higher percentage of firms (56.0% vs. 34.7%) required some level of service. Twice as many HT firms require extensive service as LT firms. To overcome this perceived obstacle, approximately 20% of the HT firms utilized third-party sources for exports.

Another related factor is the size of the first export sale because if service is required, contracting for service, or doing it yourself is more cost effective the larger the sale. HT firms were more likely to have a first sale over $50,000 than LT firms (16.0% vs. 6.2%). The higher value first sale helps support a service component. For LT firms, a first sale of under $1000 was reported by 38.4% of the firms and under $5000 for 66.8%, while 51% of HT firms started with under $5000.

The size of the sales is also related to the importance of the sales to the firm. HT firms reporting exports of over 5% of annual sales is over three times the percentage of LT firms (25.2% vs. 7.8%).

The tendency for HT firms to be newer, with higher initial unit sales, and a larger ongoing percentage of export sales would partially explain their willingness to offer service, and to export directly (80%).

Another factor which has been discussed in the literature is the need for an "international" perspective, or willingness to go outside traditional trading areas. The data in this study shows the management in HT firms is significantly more likely to have at least one manager who has lived outside the U.S. (34.9% to 18.8%), traveled extensively (57.8% vs. 47.5%) and speaks a foreign language (30.3% vs. 20.8%). This experience base is seen as one factor reducing the perceived barriers to exports. It is one way to reduce the psychological distance many managers experience.

This experience is also evidenced in the area of the world where products are sent. More sophisticated markets are pursued by HT firms. A higher percent of HT firms export to Britain/Europe (34.9% vs. 21.9%) and to Asia (10.5% vs. 3.9%) than LT firms. In contrast, LT firms are more likely to export to the Caribbean and Canada.

Efforts to work with existing exporters to increase sales and increase the commitment of the export market could be one way to capitalize on the initial internationalization process that has started. It would seem opening new markets outside Canada for LT firms, would be one example. Other recommendations are included in the final section. These basic demographic factors only partly explain the differences. The next portion considers some of the influences which were important in the decision to export and problem areas they experienced.

KEY INFLUENCES ON EXPORT DECISIONS

The overall study in progress indicates that potential profitability and a need to expand were frequently mentioned factors in the export decision. The single most important factor however, was an unsolicited order. This factor was over two times more often mentioned than any other factor. The pattern for HT firms is similar with two exceptions. Trade associations are often considered a key actor in the decisions of trade, but for the HT firms, not one firm stated associations were very important compared to 11.2% of LT firms. The HT firms seem more likely to go it alone as seen in the no importance category (78.1% vs. 63.3%).

A second area of difference is competition. The HT firms are more competitor driven (52.1% vs. 29.3%) than LT firms. The data suggests more of a world market may exist and efforts to follow traditional export patterns may be inadequate for HT products.

Some of the factors cited as of no importance by 70% or more of all respondents included: Attendance at an export seminar (72.8%), patriotic duty (71.4%), bankers (81.8%), freight forwarder (74.2%); declining profits (76.3%), and to offset seasonal sales (75.5%). All of these are traditionally cited as why firms go to exports. This data does not show the traditional thinking to be valid.

With a firm's decision to enter the export market come a series of export-related problems that many had to face. In several, the most serious of these was information in general, and more specifically marketing information. Seventy-two percent (72%) reported at least some problems in obtaining initial information/knowledge about exporting; 62% encountered problems getting names/addresses of contacts, and 24% found "Significant" difficulties locating countries or markets in which to do business.

A major thorn not related to general information and marketing concern was foreign import restrictions or regulations. Sixty-nine percent (69%) reported at least some problems in this regard--22% reported them "Significant". Somewhat surprisingly, a majority also reported problems with U.S. regulations and restrictions. The distribution of responses would indicate foreign restrictions were the vastly more difficult problem, but the fact remains a large number of firms point to problems with their own government. This raises a series of interesting questions that are unanswerable with the data at hand.

One of the least problematic parts of the process appeared to be financing exports. A hefty 58% reported no problems in this area. Given the small size of most initial sales and the unsolicited nature of the order, it is probable most are "cash and carry", and therefore not in need of sophisticated financing procedures. As the deals grow larger, however, this situation could change radically.

A second problem of limited importance appeared to be language competence. Since relatively few American small businesses had at least one top manager fluent in one or more foreign languages, most initial deals were probably conducted in English. But if export patterns shift to place greater emphasis on markets where English is less prevalent, this could be a problem.

The HT firms in the study experienced more significant problems in 4 of the 11 problem areas. The general data showed 72% found some problems in obtaining information and the HT firms are nearly the same. The difference is the "significant problem" category was mentioned by HT firms (28.7% vs 17.1%) more frequently. This result could be because the new products have not established users or channels of distribution.

The worst areas of difference are in the regulatory/restrictions area where HT firms report significant difficulty. Restrictions in the import area are reported as significant problems by HT firms more often than LT exporters (33.3% vs 21.0%). Protectionism, new, untested technology, and similar factors are possible explanations. More unexcusable are the percentage of HT reporting significant problems in U.S. regulations (23.4% vs 11.6%) when compared to LT firms. Nearly one-quarter of firms with export potential reporting U.S. barriers does not suggest a rational export policy exists. We spend money to encourage exports that we restrict!

The final area of difference between HT and LT firms is in financing. The lack of experience and newness of the HT firms could be one reason for the increased difficulty in financing. Current problems to increase state funding and change taxes for exports could be one way to help overcome this barrier. Financing is significant because of the size of orders and higher percent of sales that exports represent in HT firms. These products also have a higher sales growth rate which could help the balance of trade problems. Barriers inside the U.S. are not needed with the other problems to be overcome.

Respondents were asked how important selected factors were in holding down current export sales as opposed to the intiial orders reported previously. Firms are exporting, and the purpose was to determine what factors were most important in holding down export sales.

Most mentioned in the total sample as very important were: the U.S. Dollar (42.9%), unable to find markets (28.6%), cannot get names and addresses (23.0%) and strong U.S. sales (24.0%). When the HT firms were examined their problems were different. The nature of the products, size of the firms, newness of the companies and growth rate relate to problems related to lack of resources. Compared to LT firms, the HT firms are more likely to consider the following very important in affecting growth: managerial resources (22.7% vs. 14.1%), financial resources (29.5% vs 14.2%), foreign representations (15.1% vs 7.1%), and government restrictions (14.4% vs 7.1%).

These firms offer attractive targets for public and private firms to increase exports. None of these problem areas has to do with competitiveness of the product and are "solvable" through the proper combination of efforts.

Other factors can be considered in reviewing the export potentials and behavior of small firms. This report is only part of a large data set which is being analyzed.

CONCLUSIONS

Exporting is a growth strategy being employed more by HT firms than other exporters and the overall population of small manufacturers. The difficulties encountered by HT firms are more likely to be "growth" related than purely export related. The primary limiting areas related to exports fall in the areas of government restrictions at home and abroad, and the inability to use traditional channels for market information.

The use of third party intermediaries such as the growth of export trading companies could provide an interim measure of support. Financing arrangements for small firms or their export intemediary must be considered if growth is to be continued.

In addition, it appears the maze of red-tape is as thick and sticky as ever, and until these problems are overcome the U.S. may be its own trade barrier.

C) SMALL BUSINESS INCUBATORS: A CREATIVE TOOL FOR LOCAL DEVELOPMENT

The Technology Center Concept

Helping Businesses Start and Grow

Loren Schultz
Copyright 1984
Technology Centers International, Inc.

An Organized Program For Development, Growth And Success Of Small Technology Businesses

We Need Small Business

Productivity
- 45% of GNP from Small Business

Innovation
- 50% of Major Innovation
- 24 Times More Major Innovation/$ (With Only 3% of All R&D Efforts)

Job Growth
- 87% of New Jobs Since 1969

American Success Story
- Small → Big

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Small Company Growth

72 Firms - Started in 70's (With Venture Cap and Went Public)

$209M - Total Investment

1979 Results

$6 Billion Sales
$900 Million Exports
130,000 Employees

What Makes An Exciting Business Development Community

- Source of Entrepreneurs
- A Positive Supportive Environment
- Seed and Venture Financing
- A Program of HELP

The Technology Center Concept

- Promoting the Entrepreneurial Spirit
- Network of Technology Enterprise Centers
- A Supportive Environment
- Financing Network
- Assistance and Support

Enterprise Centers
Technology Enterprise Centers

Space – Support – Guidance – Funding – Synergism

- Facilities
- Administrative Services
- Champion/Consultant
- Successful Environment

Facilities

- Professional; Austere
- Good Address
- 50,000± Square Feet Modular Space
- Central Entrance
- Reception Area
- Conference Rooms

Financing

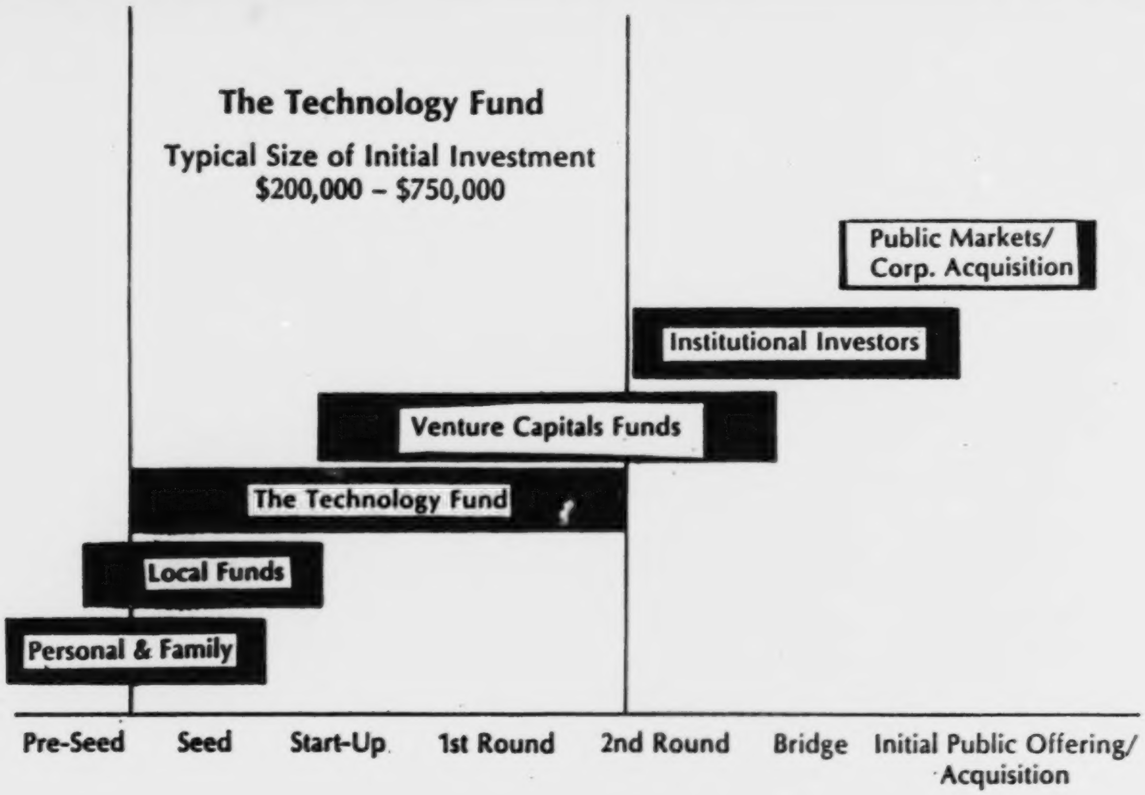
- Local Funds
- The Technology Fund
- Additional Financing Alternatives

Administrative Services

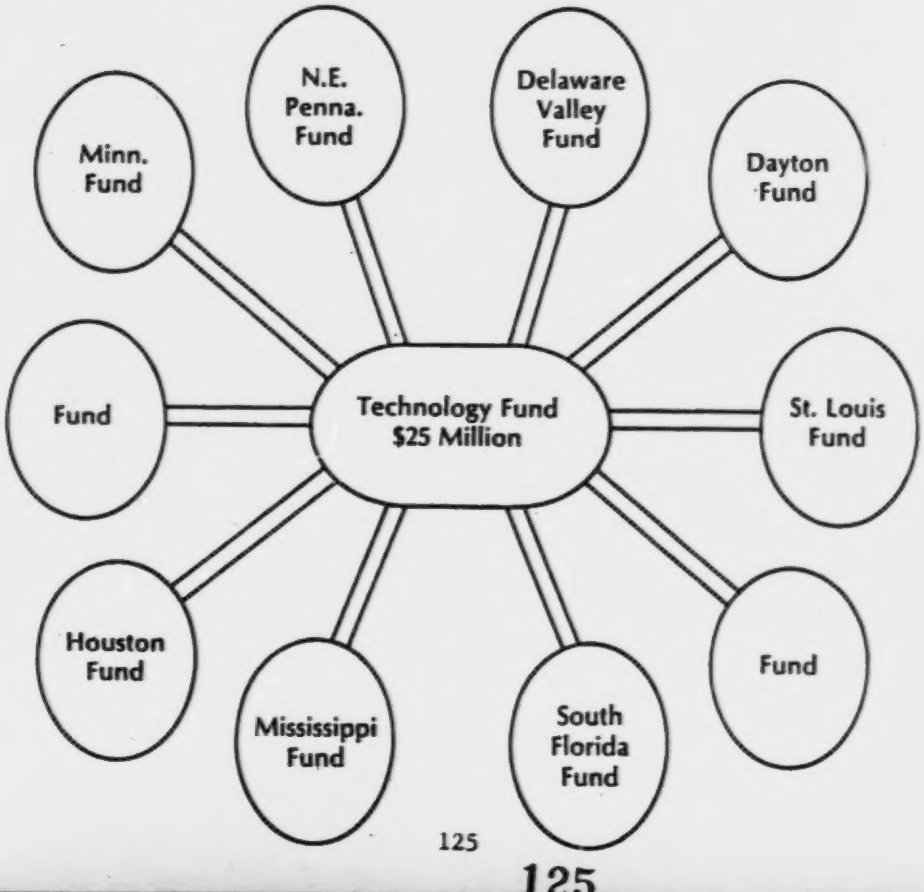
- Secretarial
- Word Processing
- Copy
- Telephone Answering
- Furniture
- Transportation
- Communications

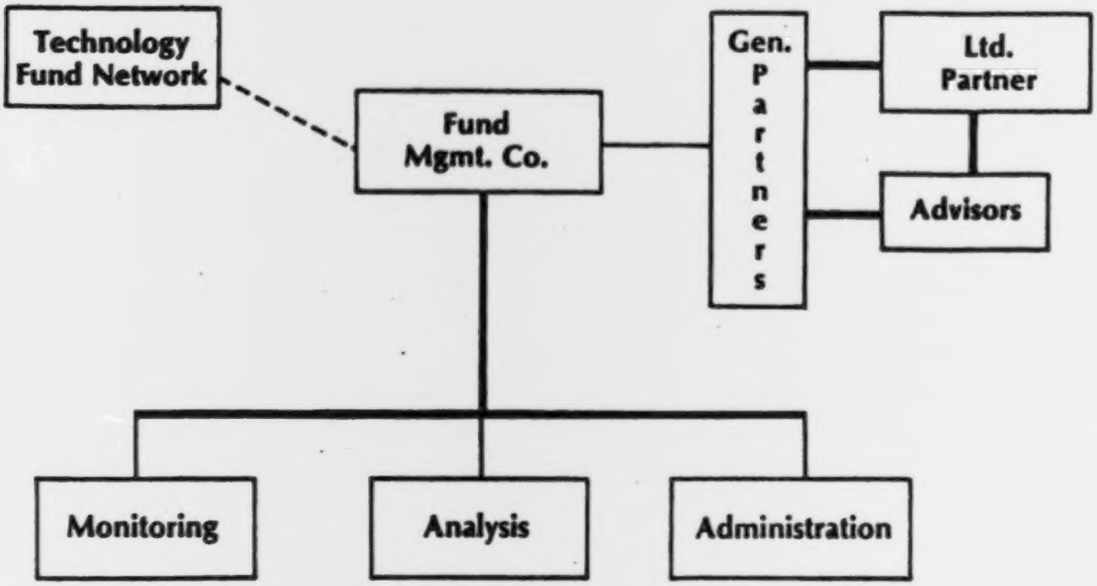
Assistance and Support

- Management of TEC Centers
- Advisors
- Champions
- Management of Technology Fund
- General Partners of Local Fund
- Advisors of the Funds
- Network of Center Companies & Graduates



FUND NETWORK


N.E.
Penna.
Fund
Delaware
Valley
Fund
Minn.
Fund
Dayton
Fund
Fund
Technology Fund
$25 Million
St. Louis
Fund
Houston
Fund
Fund
Mississippi
Fund
South
Florida
Fund


Technology Fund Network
Fund Mgmt. Co.
Gen. Partners
Ltd. Partner
Advisors
Monitoring
Analysis
Administration

Fund Participation

1. High Return on Investment
2. Window on New and Innovative Technology
3. Source of Technical Resources and Talent
4. Leveraged Investment in Technology
5. Visible Support of the American Free Enterprise System

New Center Plan

1. Local Interest Group
2. Commitment
3. Facility Selection
4. Business Plan
5. Form Local TEC Company
6. Local Venture Capital Fund
7. Project Financing
8. Hire Key Personnel
9. Training
10. Promotion Program

Unique Concept

Technology Enterprise Centers - Proven Concept
Magnetic Network - Attracts Opportunities
Management Support - Distributed
Successful Environment - Helping Hand
Network of Talent - Business Success
Fund Management - Operations People
Local Funds - Local Support
Financial Monitoring - Small Investments

Your Community

- Where Will Growth Come From?
  - — Relocation
  - — Expansion
  - — New Business
- What Will Keep Business Here?
  - — Positive Exciting Business Climate
  - — Local Investment in Company
  - — Expansion Capital

What Should We Do?

- Establish Technology Enterprise Centers
- Create an Exciting Venture Capital Base
- Continue To Improve Business Climate
- Encouragement Programs
  - We Did It Program
  - You Can Do It

Caution

Don't → Give Too Much Away
Don't → Let Venture Capital Fail

Do → Something

Unleash Your Talent

Success Breeds Success

CREATIVITY, INNOVATION AND ENTREPRENEURSHIP SYMPOSIUM

Keys to the Future of
American Business

"Small Business Incubators: A Creative Tool for Local Development"

Cascade Business Development Center: An Incubator Operated on the
Cascade Campus of Portland
Community College

Presentor: Jim Van Dyke, Executive Dean

It is my pleasure to share with you the experience of Portland Community College in establishing and operating a small business incubator. I had the privilige to be in on the initial planning phases and was able to continue on with the project to its fruition. Although not complete at this time the center is open and has 9 businesses currently operating out of our campus site. But that is getting ahead of myself. Let me go back and provide you with some history as to how it all came about.

During the fall term of 1981 and again during winter term 1982 the college contracted with the Private Industry Council of the City of Portland to offer a class to improve the skills of minority business operators in North-Northeast Portland. We were able to purchase the program that was then being used by U.S. Bancorp. We also hired a staff member from U.S. Bancorp to teach the class. In each case the course was a disaster. The entrepreneurs that were recruited via the banking community, were ill prepared to handle the sophistication of the program. Many dropped out, and those who stayed with the program saw little use for the topics covered. This led both the PIC and the PCC to seek out alternatives for meeting the needs of this population.

About this time the literature began to include some discussion on the first incubators in the country; these for the most part being for profit ventures operated by Control Data. The PIC commissioned NORTHWEST STRATEGIES, a locally based research firm, to do a study on the feasibility of an incubator in Portland. Their report, dated May 3, indicated that there was a large pool of potential business incubator participants, that these were primarily in the areas of:

- light manufactoring
- electronic assembly
- manufacturers and sales representatives
- contractors and sub-contractors
- services businesses
- professional offices

The assistance needed by these businesses included the following:

- financing
- financial management
- general record keeping
- space, particularly, in small amounts, in acceptable condition, and at affordable prices
- management skills such as pricing, planning, marketing, and personnel management.

Armed with this report and information from a second report prepared by PCC which showed that over 5000 businesses did not renew their licenses in 1982, these businesses residing in the college's district, the Cascade Business Center Corporation was born. The sole

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purpose of the corporation was to develop a unique incubator for the city of Portland. The project was a joint venture among private sector government and education. The initial board of directors reflected this cooperative effort as two members came from each of the following areas: Private Business, Private Industry Council, Portland Development Commission, and Portland Community College.

The first task of the corporation was to delineate the operation of the proposed incubator. The following overall project goal was established to create, implement and develop the Cascade Small Business Development Center, and incubator that will provide:

- Education, experience and guidance to new and developing small business entrepreneurs, especially minorities and women, in a protected environment.
- A cornerstone for the redevelopment of North/Northeast Portland that will improve economic conditions in the area and specifically create new jobs for area residents.

From this overall goal four specific project objectives were drawn:

1. To increase the opportunities for success of new, small businesses with preference to minority and women owned businesses.

2. To integrate the training needs of business with the expertise in education.

3. To create new jobs, hence improving the economic conditions of the North/Northeast neighborhood and metropolitan area.

4. To create a state and national incubator model.

To ensure the accomplishment of these goals a model tenant agreement was developed which includes:

- A management development plan covering both the
  - . growth and development of the business itself and, probably more importantly,
  - . the development of the entrepreneurs' skills and management responsibilities through a combination of education and professional assistance and guidance.
- A "First Source Agreement" that guarantees the jobs developed will go to city residents through the PIC.
- Relocation assistance, through the Portland Development Commission, and
- Access to low cost college research, laboratories, and student worker assistance.

The training program, which leads to a certificate in Small Business Management, covers the following topics:

Year One - The Business Plan
Marketing for Small Business
Bookkeeping for Small Business
Legal Forms of Ownership
Advertising
Dealing with your Banker

Year Two - Financial Statements for Small Business

Selling Techniques
Human Resource Management
Applying for Loans
Interpretation of Financial Statements
Advanced Marketing
Advanced Accounting and Bookkeeping
Small Business Law
Motivating and Managing Employees

Although some of these items are available at various sites around the country, it is only in this project that they are all brought together as a part of a commitment by all parties toward the success of each endeavor. Here lies the basis for a real reduction in the business failure rate. Not only has such a system been strongly urged by The Small Business Administration but has been proven in a way to work through franchising.

The next task of the corporation was to raise sufficient capital to build a 60,000 sq. ft. building to house and operate the incubator. Unfortunately, the recession was in full force about the same time the request for funds was initiated. Of the needed $2.5 million, only $200,000 was raised for capital construction and $100,000 for operation. The operation money was in the form of a three year grant from the Fund for the Improvement of Post Secondary Instruction. This in effect said we had sufficient money to operate the project for the first year but no facility to house the tenants.

The college stepped in at this time and agreed to make available a building on the Cascade Campus to initially house the incubator. The building needed extensive remodeling which was undertaken in early 1983. The first floor was completed and the first tenant, Ascot Domestic Services, moved in on April 8, 1983. In order to provide additional space, $150,000 of the funds for capital construction was used to provide space in a new classroom building that will be finished in May, 1985. This will add 3500 sq ft of space to the project. A 3% loan was also obtained by the corporation to complete the remodeling of the existing space. This was completed in February, 1985. By June, 1985 the corporation will have available 8,500 sq ft of space.

The list of current tenants and accomplishments follow:

RIVERA CONSTRUCTION - Minority owned - Previous location was in the owner's garage. He now employs 35 to 50 workers depending upon weather conditions and job demands; this is opposed to 3 to 5 employees prior to coming into the incubator. Through the educational component he has learned how to produce conventional financial statements where prior to this he utilized his personal checkbook for all financial records. He is now, with the assistance of Center staff, preparing a loan application for a Viet Nam Veterans Business Loan of $150,000 that will be used to implement his plan for controlled growth.

PAX PRO POPULO, INTERNATIONAL CONSULTANCY - Female owned - During the summer of 1984 the firm was near bankruptcy because of the lack of knowledge in marketing and cash flow problems. Since joining the incubator she has been taught how to identify markets and sharpened her selling techniques. She currently has contracts with the Portland

Police and Fire Departments.

MAGNUM PROTECTIVE SERVICES INC. - Minority owned - In September, 1984, the IRS closed down this business. The owner sought out the incubator for help. It turned out that his partner had been in charge of the books and had not paid the taxes. We were able to form a new corporation and get the business re-established. With help of the Center staff the company secured the first minority working capital loan granted in the two year history of the PDC program. The firm now employs eight people and the owner is currently learning how to maintain an adequate set of records. He is a Viet Nam combat veteran and plans on applying for a loan through the SBA.

EXECUTIVE CUSTOM TAILORING INC. - Minority owned - This entrepreneur had always dreamed of owning his own business. He moved into the Center in October, 1984, and currently has four employees.

ORETECK LABORATORIES - Electronics start-up firm. The first eight months have been devoted to research and development. The firm has prototypes of two miniature devices. One will detect wear on an electric engine and the other will provide a micro-chip for two-way communication systems. Production is targeted for Summer 1985. The owner is a former student of the college and learned his microprocessing in a college program.

The remaining businesses have just been accepted and are listed to show the variety interested in the incubator.

PITRE & SONS PAINTING - Painting and light construction contractor.

PANDATA, INC. - Software development specialist.

HILL INVESTMENT, INC. - Marketing and brokering consultants.

STEWARDSHIP MAINTENANCE - Building maintenance service.

The major problem remaining is locating sufficient space so that the Center can become self-supporting at the conclusion of the three year FIPSE Grant. It had been determined that a minimum of 30,000 sq ft of space is needed to put the Center on its own. The Board of Directors is currently investigating the possibility of joining forces with a community development group in North/Northeast Portland to buy and renovate some existing space in the area. This route has been deemed the most cost effective. As soon as a working relationship is established a fund raising campaign for $500,000 will be undertaken. With the success that we have been able to demonstrate and with the cooperation that is being demonstrated by private industry we feel certain that the funds will be raised and that the incubator will have a long life.

Two additional facts are worth mentioning. First, is the overwhelming support from the private sector. Over fifty business people, some successful small business folks themselves, have volunteered their time to act as consultants to both the project and to individual businesses in the incubator. The total number of hours individuals have pledged per week range two to fifteen hours a month. Those who had to learn the

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hard way are willing to share their experiences with others and help them to avoid the pitfalls.

Second, is the fact that the college has been able to use its experience with the incubator in expanding its services to small business owners. Through a grant from the State of Oregon and the SBA we have extended the training program to businesses off campus. Through this program we are willing to make a two year commitment to a business. Each month a new topic is discussed with a follow-up visit to the business itself to see how the concept is being applied or should be applied to that particular business. It is interesting to note here that none of the first group of clients was keeping a monthly profit and loss statement nor using good accounting techniques. Through the efforts of the program they are now using double entry accounting and producing the monthly statements.

We, at Portland Community College, are proud of our efforts and that of the community we serve for providing a much needed service to the business entrepreneur, whether new or existing. Eighty percent of the jobs in Oregon are provided by small business and through these efforts they will be maintained and strengthened.

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D) INTRAPRENEURSHIP: INNOVATIVE WAYS OF MOTIVATING EMPLOYEES

"MOTIVATING (GUIDING) ENTREPRENEURIAL (INTRAPRENEURIAL) BEHAVIOR"

Dr. Erik K. Winslow
School of Government and Business Administration
Department of Management Science
The George Washington University
Washington, DC

ABSTRACT

The issue of motivating entre(intra)preneurial behavior is one of great importance to any society. The problem is that motivating human behavior is really not possible. Human behavior is motivated all the time; the real issue is to structure a business climate that fosters and rewards the excitement, enthusiasm and experimentation that accompanies entre(intra)preneurial behavior. A basic understanding of organizational climate, behavioral modification and the "deviant" behavior that make up entre(intra)preneurail behavior can develop and nurture the joy and passion necessary for economics and human growth. The issue of restrictive environments and the role of staff groups in restricting creative, innovative entre(intra)preneurial behavior is one a leader-manager must be aware. The need for a more nearly accurate definition of entre(intra)preneur is one of the first hurdles to overcome in researching the issue of guiding entre(intra)preneurial behavior.

There is a paradox in speaking or writing about motivating any kind of behavior, but especially, motivating entrepreneurial behavior. At the very outset, it should be very clear that academicians and practicioners who speak of "motivating" anyone are purely and simply dead wrong in the use of the term. Living human beings are motivated all the time. A much more comfortable, for me, way of discussing the issue is to speak about guiding or shaping motivated behavior. Then it is possible to research, comment and discuss the ways in which entrepreneurial or intrapreneurial behavior can be fostered, encouraged, guided or shaped.

The issues and themes of many presentations on entrepreneurial and/or intrapreneurial behavior that are presented in textbooks, articles and symposia frequently begin with some discussion of the personality characteristics or the

motivation of entre(intra)preneurs, implying that these characteristics are narrowly distributed in the general population. Elsewhere (1) I have speculated that innovation and creativity are widely distributed in the normal population, not narrowly, and further I would argue that non-innovative and non-creative behaviors are a maladjustment in humans brought on by the healthy ability of most of us to adapt and adjust to our environment. Herzberg (2) has commented that ..."all human behavior is adjusted behavior, therefore, all human behavior adjusts away from what is naturally healthy behavior." In effect, all of us have adjusted away from normality, therefore, none of us are normal. An extension of this idea leads to the conclusion that all cultures choose the pathology, or the abnormal behavior, that will be defined as normal for that society.

I believe that one of the fundamental motivations of human beings is to pursue their own growth in competence, skill and creativity; to act upon the world rather than to react to the world; and to shape the environment as well as be shaped by their surroundings. The human being operates always within this dilemma -- "human behavior is influenced (shaped) by the environment, but it is an environment created and developed by human beings." (3)

The above could lead to a discussion of whether the natural, normal, pristine human being is good or evil, a discussion of the importance of nature over nurture, or more directly to the more mundane central topic of this paper. One of the most creative current observers of organizational behavior, Peter Vaill, has pointed out, (4), that "behavioral scientists have a common trait, that is, they believe the art of applied behavioral sciences is the art of making lists." I frequently define myself as an applied behavioral scientist, therefore I will present my list of observations on Motivating (Shaping) Entre(Intra)preneurial Behavior.

1. The climate, atmosphere or environment must be created to allow the expression of entre(intra)preneurial activity.

2. The drive, motivation or spirit of entre(intra)preneurship is broadly distributed in the general population.

3. Behavior is a function of its consequences. (3)

4. Entre(intra)preneurial environments have an aura of excitement, suspended belief and an importance toward convential wisdom.

5. The entre(intra)preneurial activity, tested against "standard" behavior or conventional organizational policy frequently appears as deviant behavior.

6. The terms entré(intra)peneur are used very loosely and are becoming useless in discussing innovation, behavior, economic and/or organizational activity.

I. Climate, Atmosphere or Environment

The resilience of human beings to adapt to physical climate has an organizational counterpart in the ability of people to perform and adjust to the climate or the atmosphere of the company or agency or organization. (Climate, in the organizational sense, is the total of expected and anticipated modes of interpersonal behavior within the organization). (5) The organizational climate presents the person with a psychic environment in which to behave. There is a subtle, yet definite and pervasive, pressure exerted by the atmosphere or climate to shape behavior to conform with the cultural mores and values of the organizational entity. Other commentators have observed that large organizations set conditions that thwart the expression of creativity and, by implication, entre(intra)preneurial spirit. (6)

Herzberg (7) presents a list of suggestions that can lead to the setting of an atmosphere of experimentation, passion and spontaneity which can provide product-client-success relationships that can ultimately produce a climate that fosters the creative, innovative entre(intra)preneurial activity that once was the hallmark of American businesses. An observation that has been made by both Herzberg (7) and Peters (8) that a climate that fosters passion and innovation is one where contact with the product and concern for the client supersedes a deadly focus on finance, personnel policies and legal issues. The sheer joy of producing and customer service can be structured into the overall climate of any organization.

II. The Drive, Motivation or Spirit of Entre(intra)peneurship is Broadly Distributed in the General Population.

Many years ago, I learned the hard way that to ignore the normal curve is to constantly mis-interpret human behavior. This is not the place to discuss child-rearing, value teaching of school systems and media impacts on motivation, except to point out that these influences may serve to move people to behave in less creative, less innovative or less entre(intra)preneurial ways.

Lipper (9) points out that entrepeneurs have frequently been described as risk-takers in economic-financial terms, but really when looked at in psychological terms they may really be risk avoiders. That is, they do not wish to run the risk of being dependent on the whims, caprice and illness of bosses or organizations to determine their success. They want success to be determined by their effort, energy, creativity, goal orientation and talent.

The question must be asked, "What happens to the exploratory, bubbling enthusiasm of new born babies?" More so, "did the stereo-typical gray, stodgy bureacrat begin his career that way?" My contact with young and old civil servants suggests a different question. "What happens to the witty, gregorious, charming, creative next door neighbor when he/she arrives at Huge Bureaucracy Ltd?" Maslow (10) and Herzberg (11) both have pointed to a natural drive in human beings towards growth, creativity, self-actualization and competence. The picture is one of a natural, interdependent creative being that drives to be capable, creative, responsible and pro-active in regard to the environment, yet is adjustable enough to become a dependent, risk-avoiding, passive sycophant content to be reactive and helpless in dealing with the environment. The role of leaders and managers is to foster the creative, driving person and set goals and responsibility for achievement to allow the creative urge to occur.

One of the recurring phenomenon in reading literature on Mid-career and Mid-Life Crisis is the wishes and fantasies of people to be their own boss. Whether it is leaving a company to start one's own business, divorce, return to school or even nervous breakdown, the driving force appears to be a sense of "being my own person." Levinson (12) sees this as a major element in Mid-Life, the recapturing and re-exploration of the freedom and feeling of ownership of one's achievement and accomplishment.

III. Behavior is Determined by Its Consequences (13)

The most straightforward statement of how behavior is learned, modified and encouraged is summed in the above six words. Reid Daitzmanis' presentation in this volume summarizes the behavior modification principles clearly. For our purposes, it is clear that organizations that foster and reward innovation, creativity and entre(intra)preneurial behavior will stimulate more behavior that is entre(intra)preneurial. It is important to note that what an organization appears to reward, is the behavior that will be seen as the model for success. Therefore, if innovative and entre(intra)preneurial behavior appears to be undesirable or less valued than dependency or protective behaviors it will not occur. However, in those organizations where innovators and entra(intra)preneurs are rewarded, promoted and recognized the organization will find that innovation, creativity and entre(intra)preneurship is widely displayed in the organization. One caution should be noted, entre(intra)preneurs are hard to control. Every organization leader must ask if their aim is control or growth.

IV. Entre(intra)preneurial Environments have an Aura of Excitement, Suspended Belief and an Impertinence Toward Conventional Wisdom.

The aura that exists in a climate that fosters entre(intra)preneurship is one that can be related to Herzberg (7) and Peters (8) use of Passion. People are excited, spontaneous, impertinent, questioning, arguementative, iconoclastic, irreverent, experimental and dedicated to problem solving and producing. (Contrast this with the aura surrounding the financial accounting departments, personnel departments and legal counsel offices in most large organizations.)

The spirit is one of outright "Can Do," the attitude is rarely one of "why we can't" but one of "how can we?" In this sense when contrasted with the policies of the past, there appears to be a willingness to treat ideology as an outsider and the focus on getting the job done.

V. The Entre(intra)preneurial Activity, Tested Against "Standard" Behavior or Conventional Organizational Policy Frequently Appears as Deviant Behavior.

Previously I have (1) made the observation that innovators and creators appear to be mildly sociopathic, at least in their unwillingness to accept cultural constraints or dogma that prevents intuition or insight. The challenge of opening new markets, devising new products, creating new service delivery seems to develop a single goal focus that finds the annihilation of barriers a major driving force. This focus may result in the absent-minded professor syndrome or the manic activity of the super-salesperson. Whatever others label it, in organizations with defensive climates, tight hierarchies and autocratic controls the behavior will be seen as disruptive, "kooky," downright immoral, and certainly deviant. The truth is that little growth is accomplished by those who have adjusted to the conservative policies of the past. Rarely do new discoveries come from the central core of a culture or society, almost always new methods, products or services come from the edges of society.

VI. The Terms Entre(intra)preneurship are Used Very Loosely and Are Becoming Useless in Discussing Economics or Organizational Activity.

Quite simply we really should begin to redefine the terms if we wish to study and encourage entre(intra)preneurship. As used in this conference, it is apparent that even professional researchers are unclear as to the meaning of the two terms. Some seem to believe that any business activity is entrepreneurial, others have a more restrictive use.

My favorite definition is one that a friend of mine uses -- "no one is an entrepreneur until they have gone bankrupt at least three times." The problem is one of not clearly specifying the behavior of a person in enough detail to clearly know what or how an entrepreneur does what an entrepreneur does.

SUMMARY

A quick review of the major points on the Motivation of Entre(intra)preneurial behavior is in order. The points above can be summarized very succinctly.

1. Human beings are motivated all the time. One method of channeling this motivated behavior is to focus on individualized task assignments (planned job enrichment as an individual achievement program.) In this regard, using motivation in the common vernacular, the formula " Motivation Leads to Achievement" is only two-thirds correct. The formula should be "Achievement Leads to Motivation Leads to Achievement."

2. The issue of climate setting becomes a crucial element in stimulating entre(intra)preneurial behavior. The atmosphere of spontaneity, experimentation and a "can do" spirit is generated by real leadership that trusts the competence and capability of people. This climate starts with the assumption that entre(intra)preneurial drives are widely distributed in the population.

3. Behavior is determined by its consequences, follows closely on the climate setting responsibility of the leader-manager. Rewards for performance are necessary to shape the entre(intra)preneurial behavior growing from the natural motivation of people. "What you stroke, is what you get."- is the basic understanding necessary to promote entre(intra)preneurial behavior.

4. The aura of excitement transmitted by the leader is extremely important. We must be able to share the passion and fun of creating, of risk-taking and of delivering products and services. Reliance on rules and procedures may stifle the job of creation, so rules need to be reviewed constantly.

5. Entre(intra)preneurial behavior may be seen as deviant behavior by many within areas of organizations that are mired in conservative units and departments. Not all deviant behavior is creative, but toleration and rewarding of productive deviance is necessary.

6. The terms entrepreneur and intrapreneur are so widely and disparately used that we may need to more narrowly define the term or begin to use a new set of terms.

Other presentors and papers can aid in understanding the entre(intra)preneurial spirit and behavior. My feeling is that if we look more closely at everyone in the organization, and will find, to paraphrase, "We have met the entre(intra)preneurs and they are us."

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"THE ELEVFN COMMANDMENTS: 4+3+2+1=11"

REID J. DAITZMAN, PH. D., PRESIDENT

LEARNING TO LEARN SOFTWARE, INC.

ABSTRACT

A creative business environment is more than the sum of its parts and includes the synergy of people, things, perceptions, and reality. It is maintained by the laws of learning and rules of reward and must satisfy eleven needs and the eleven commandments.

1+2+3+4=11

The creation and maintenence of a creative business environment is based upon the synergistic interaction of people, things, perceptions, and reality. People possess individual differences, and motivated by traits, psychological states, and circumstates. A circumstate is a person-situation-environment transaction. Our attention to this seminar is based upon our immediate circumstate. Most offices have machines. Machines are tools for information. The current personal computer explosion can testify to the need for many individuals to possess knowledge, manipulate facts, and process information. Some machines do a better job at allowing for the full expression of these office needs. Who said, "it is not, only thinking makes it so"? Our perceptions "color" the world. A creative business environment must appear to be a certain way. The maintenance of this appearance is both an art and a science. Don't let anyone fool you into believing otherwise. These appearances create the office "reality". This reality is based upon the individual's present, their current circumstates, the environment, memories, and future needs and goals. Unless your role in business is completely task oriented you are probably living and responding to the immediate past, memories of ways things ought to be, or future plans. This emphasis upon the past and future prevents creative management. Simply stated, the here and now is unworthy of attention. This form of business is doomed to failure and unsatisfied employees.

WHAT EMPLOYEES NEED

People require the satisfaction or expression of the following in order to maintain creative business environments: pleasure;protection;friendship;fashion;status; knowledge,affection;amusement;shelter;comfort;hygiene. The humanistic application of these circumstates to the business environment is a future technology currently under development. It is called a cyberpsych technology and deals with artificially intelligent environments that satisfy the 1+2+3+4 circumstates.

LAWS OF LEARNING

Cyberpsych technology is based upon the laws of learning. Behavior is determined by its consequences. Behaviors that are reinforced will more likely be repeated. Behaviors that are ignored or punished are more likely to occur less often. There are three kinds of rewards:

- social ("nice job")
- things (your salary)
- activities (vacation to Hawaii)

There are also three kinds of punishment:

- withholding reinforcement (loss of a bonus)
- physical (striking someone)
- social ("you really messed up that account")

Rules of rewards

There is an old saying, "in the beginning was the sponse." All we mortals have to work with is the response. If you want something done now and correctly, use rewards. Forget not rewarding (extinction) or punishments. Let me say it again: Always use positive reinforcement. You will be happier and your business will become ecstatic. Never use the stick. Always use the carrot. Here are the carrot rules:

1. reinforce often
2. reinforce accomplishments other than obedience
3. reinforce immediately
4. reinforce consistently
5. never mix punishment with reinforcement
6. clearly identify what is being reinforced
7. use various types of reinforces
8. use multiple sources of reinforcement
9. creatively construct situations and circumstates that are potentially rewarding
10. reinforce after the desired behavior occurs

THE 11 COMMANDMENTS

This brings us to our final point. If you fail to heed these words or wisdom you may find yourself near Alka-Seltzer tablets instead of you know whose tablets. I assume you want to succeed at work, be happy, and have your employees content and productive. It does not matter whether you are in the private sector or governement. It is irrelevant whether you are a manufacturer, or offer goods and services. I hope you are getting the picture. (drum roll please.) Thall shall have:

1. trouble makers and problem producers
2. chronic re-defining of goods and services
3. absolute freedom to fail
4. a responsive physical environment
5. personal responsibility
6. sharing of information
7. personal recognition
8. measures of individual contributions to company goals
9. group positive rewards for sub-goals
10. elimination of management *per se*
11. personal recognition of all people by top management

These are the techniques for creating productive business environments. When you understand that 4+3+2+1=11 you are psychologically prepared to begin.

"ENTREPRENEURIAL EMPLOYEES - THE KEY TO BUSINESS SUCCESS IN THE INFORMATION AGE"

MICHAEL D. LONDON

THE LONDON COMPANIES

ABSTRACT

What are the keys to motivating people? What is motivation? Why have motivated employees? Why are entrepreneurial employees the best type to motivate for "business" success. What is an entrepreneurial employee? What are the primary and 10 secondary business philosophies as well as the 28 practical techniques that are essential to attract and keep entrepreneurial employees in the Information Age.

INTRODUCTION

Good Day. Today I plan to talk about the philosophies, ideas and techniques I have developed in the last twenty-five years to motivate employees.

Since 1960, I have started or acquired over twenty companies. All of the companies had one common denominator - they were dependent on their people for success. I believe my experience is typical of business in general and applicable to most of you.

Why do some companies consistently attract and hold onto quality staffs who contribute to the continued growth and success of the company while others have a revolving door, or at best, an uninterested, demotivated staff who think and act, in their day-to-day activities in ways that keep their company from reaching its potential for success. The answer is, the "right" motivated people! What are the keys to motivating people? First, we must ask:

WHAT IS MOTIVATION? Motivation in an employee, is "a heightened sense of attachment and responsibility to the vision and mission of the company." Some symptoms by which to recognize companies that have motivated employees:

- Where people stay for long periods of time.
- Where there are no unions.
- Where employees creatively problem-solve.
- Where innovation is both accepted and forthcoming.
- Where customers receive consistently high-quality service.
- Where employees work in harmony.
- Where employees seek to improve their skills for their present on-the-job requirements and future positions..
- Where people, in general, are happy, content and satisfied.

In order to motivate an employee, you must have the "right" person. Today, and especially for the future, in our rapidly changing world; the "right" person is "a quality person, well-matched to the job and the company's needs."

Two questions must be asked about the company or institution before you can match its needs with the skills and needs of the employee:

1. Is the environment within the company and/or externally, changing rapidly?

2. Do the people who work for the company have to be good at what they do in order for the company to succeed?

If the answers to these two questions are yes (and more often than not in the future, the answer will be yes for all companies - big and small), the right person is an "entrepreneurial employee".

WHAT IS AN "ENTREPRENEURIAL EMPLOYEE"?

Most "entrepreneurial employees" have nine key characteristics. He (and more often today, she):

1. Wants challenge.
2. Demands an opportunity for personal growth.
3. Seeks financial rewards for achieving success.
4. Needs interesting day-to-day activity.
5. Has a high demand for personal satisfaction.
6. Is willing to put security lower on his/her needs hierarchy.
7. Likes action.
8. Is good at what he/she does.
9. Needs to understand the "Big Picture".

HOW DO YOU ATTRACT AND KEEP ENTREPRENEURIAL EMPLOYEES?

There are two elements to any plan: first, there are the philosophies that guide every company. Secondly, there are the practical techniques that enable those philosophies to live. Together, today they are often called a company's "Corporate Culture".

WHAT PHILOSOPHIES ARE BEST TO ATTRACT THE "RIGHT" EMPLOYEE?

There is always a primary philosophy which directs the company toward some end. In the case of a business, its primary philosophy is, or should be, to produce profit. A charitable, educational or government entity would obviously have a different primary philosophy. Beyond the primary philosophy, though, all entities can have secondary philosophies. Below are some of the secondary philosophies I have developed for my companies which I believe are applicable to most businesses. While I have couched this information in business terms, the extrapolation can be made without problems, in most cases, to any organizational entity.

The secondary philosophies a company should embrace are:

1. to provide an environment where people at all levels:

   (a) can achieve personal growth,
   (b) can make mistakes and learn,
   (c) can become the best that they are capable of becoming,
   (d) can participate in the financial successes that result from the company's growth,
   (e) are encouraged and able to (1) disagree, (2) speak up and (3) innovate,
   (f) are given the responsibility and the authority to do their jobs and
   (g) are given responsibility for the success of every aspect of the business, not just their own job or responsibility.

2. To insist that there be understanding and acknowledgement by senior and middle management that "leaders must count on the leverage of their staff in order to implement and succeed".

3. To focus all of their people on the successes of both each person as well as the company - "winners win". Accentuate the positive.

4. To hold every person in the entire organization responsible for helping everyone else succeed in their jobs.

5. To promote fairness.

6. To demand total honesty in all dealings between all parties (employees, customers, suppliers.)

7. To build a system that provides honest, realistic continual self-examination of people, plans and actions.

8. To insure that all people understand the vision and mission of the company and that there is alignment on how to get there. There is nothing more powerful than everybody in an organization knowing what the company is attempting to achieve, and being able to independently accelerate the growth toward that goal. There is nothing more debilitating for a company than where people either do not clearly understand what they company is attempting to achieve and/or do not agree on how to get there. Success is impossible without alignment.

9. To only hire the best.

10. To educate and encourage all people on what the free enterprise system is and what it means to them personally, the company and how it translates to a better way of life for themselves. There is nothing worse than an employee who thinks that business, in general, is "ripping off" the American public because they simply do not understand the importance of business to the way of life to which we have all become accustomed.

WHAT PRACTICAL TECHNIQUES CAN MAKE THESE PHILOSOPHIES COME ALIVE?

1. Communicate the vision by having regularly scheduled discussions and open evaluations of the company's progress.

2. Put the vision, the mission, strategies and plans in writing.

3. Build teams. (a) to hire, (b) to problem-solve, (c) to create, (d) to forecast, (e) to strategize and in general include as many people as possible in the planning process.

4. Demand the best that everyone has to give by establishing rules, enforcing them and requiring senior management to set examples. Publish the corporate norms, ideals and expectations.

5. Hold "off-hour" brainstorming sessions.

6. Use every meeting as an opportunity to demonstrate that openess, honesty, differences of opinion are respected and welcomed.

7. Insure that the people and company (a) keep their word, (b) are fair, (c) tell the truth by developing meaningful feedback systems with staff, customers and suppliers.

8. Promote only on the basis of talent, motivation, past contribution, and potential for future contributions. Don't play favorites.

9. Encourage mentorship. Nothing can develop an entrepreneurial environment better than having the best people seek out potential winners and move them along as fast as they are capable of moving. It is good for the mentor and good for the "mentee".

10. Develop and actively follow an "open-door" policy where an employee can talk to his boss and "The Boss" if they feel their superiors (direct or indirect) are not acting in accordance with the vision, philosophies or plans of the company. Insure that there is a system to eradicate retribution by those who are open-doored. The best example of an open-door policy that really works is IBM's.

11. Avoid politics like the plague. I define politics as "the artificial manipulation of people, events and activities." Stamp it out by getting rid of people who play it.

12. Provide training at all levels.

13. De-centralize. The Information Age is upon us. The windows of opportunity are smaller and moving faster and entrepreneurial people in entrepreneurial companies will be best able to see those opportunities, as well as take advantage of them.

14. Don't compromise on the vision.

15. Don't be afraid to promote quickly. Oftentimes, if you don't promote your best people, regardless of their age or seniority, you will simply lose them to some other entrepreneurial environment.

16. Build symbols of excellence. This includes lapel pins, plaques, certificates, etc. There should be constant ongoing reminders that excellence is the standard that is expected in every facet of the business.

17. Get top people to the field "listening". Very little worthwhile ever comes out of the corporate office. Almost all the germs of good ideas and better ideas come from the field. This philosophy will keep an ivory tower mentality from developing. Encourage listening by actually sending your people to courses, etc. Do whatever is necessary to teach them to be real listeners.

18. Weed out the malcontent, the discontent and unmotivated as quickly as possible.

19. Give the motivated, but limited in talent, every opportunity to grow and to stay. Everyone isn't a blazing star and doesn't need to be. Consistency, dependability are good, solid foundational pillars on which every business is built.

20. Encourage real people-to-people interactions. I can summarize what I mean by paraphrasing a well-known quote, "Treat others as you would honestly expect to be treated in the same circumstances."

21. Educate all human resource people to the real needs of operating management.

22. Get all objectives by company, by department, and by individual in writing and utilize a fair appraisal process that is consistently and regularly implemented.

23. Encourage the development of an environment where people work hard. (I don't know of any company which has succeeded where their people have coasted!)

24. Experiment and innovate at all levels.

25. Share the wealth - do all that is possibly to fairly compensate relative to the value of the person's contribution. Give the most that you can in salary, benefits and perks, but allow a system to develop where people can pick what they want (the shopping basket approach).

26. Set big goals - nothing ventured - nothing gained!

27. Force people to take time off. Tired high-energy people burn out.

28. Keep people focused on the bottom-line.

For any company, the keys to success for today and the balance of the century will depend on its ability to plan, act and react to opportunities in a rapidly-changing world caused by accelerating changes in politics, economics, technology and information needs - in short, the onset of the Information Age. No company, big or small, that does not have motivated "entrepreneurial employees" will be able to exploit these opportunities to the fullest.

One final word, the biggest competitor for our best "entrepreneurial employees" will not be established companies. It will be new start-ups where people can exercise their entrepreneurial inclinations and desires and have a piece of the action. In conclusion, let me say that what I have always enjoyed most in growing my companies was encouraging the growth of my people. And maybe that's the most important ingredient in motivating employees - "CARING AND NURTURING".

E) CHARACTERISTICS OF ENTREPRENEURS

"A LONGITUDINAL STUDY OF THE DYNAMICS OF SMALL BUSINESS GROWTH AND DEVELOPMENT"

William C. Dunkelberg
Arnold C. Cooper
William J. Dennis, Jr.

INTRODUCTION

The primary objective of this study is to examine over an extended period of time, the growth and development of new small businesses. There are many paths to new ownership: a new start (birth), the purchase of an existing firm, the purchase of the assets of a failed business, inheritance and promotion to the head of a company. There are also many events that can occur. The firm can succeed and grow modestly, substantially, or not at all. The firm can fail, it can be sold, management or partners can change, the name of the firm can be altered, the legal business form of the company might be altered, and the products or services produced can change, etc. Thus, although it is a major objective of the study to document the survival rate for new firms and its correlates, the richness of the panolply of changes that occur in the small business community are deserving of careful study and analysis.

The study, then, will identify not so much a firm, but the birth of an "activity", and trace through time the events that are associated with that activity, including failure, ownership change, or growth and change. The study will begin with approximately 12,000 firms in their first year of business. An attempt will be made to collect a set of background information about these firms. Then, each year for the following three years, the study will document the changes that occur.

SAMPLE DESIGN

The initial sample will consist of approximately 12,000 members of the National Federation of Independent Business. The membership of NFIB is generally representative of the population of U.S. small businesses. It is difficult to establish the representativeness of the sample of one year old firms, since no comparable statistics are available. At a minimum, the firms do represent new business entities among nearly 600,000 NFIB member firms, approximately one of seven employers in the U.S. Even if these firms are not totally representative of the small business community, the events that affect them will likely mirror the changes taking place in the small business community as a whole. One might expect first year firms which join NFIB are somewhat better situated financially than new firms in general, but there is no evidence available to support or refute such a contention.

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INTERVIEW PROCEDURES

The initial sample will be sent a background questionnaire. The cover letter, questionnaire, and the results of a field test (n=155) are shown in Appendix 1. This instrument will collect basic information about the entrepreneur and the financial arrangements for starting the firm. Based on the NFIB Quarterly Economic Survey (QER), about 33% will respond to the questionnaire after two mailings (one reminder). Additional steps will be taken to increase the response rate in the first year, including a third questionnaire mailing, and perhaps a telephone follow-up.

Respondents

At 12 month intervals, firms responding in the first year of the study will be sent additional questionnaires to monitor the growth and status of the original "activity" identified in sample.

It is expected that the response rate in subsequent reinterviews will be much higher than the initial 25% typically achieved in response to the first contact in the QER, since these firms have identified themselves as being "cooperative".

Non-Respondents

A data file for non-responding firms will be established which will contain all the basic information available from the NFIB membership file (sales, employment, 3 digit SIC, and zip code). In the second and subsequent years, only the current status of these firms will be identified. The following steps will be followed:

1. Match the non-respondent file against the active member NFIB file. It is expected that 70% or more of the first year non-response will still be NFIB members. If so, the second year renewal information will be entered into the data file.
2. The remaining non-response firms will be sent a very short questionnaire which will capture the equivalent of the NFIB membership record and some information about the status of the firm.
3. Remaining non-response firms will be contacted by phone, located in yellow pages or other similar procedure to verify the current status of the firm.

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If non-response was a random variable, e.g. hitting the owner at a bad time, then the non-response represents a potential new sample in the second year. Alternative approaches include (a) sending a "catch-up" questionnaire to the non-response in the second wave; and (b) experimenting with several types of questionnaires for verification of the firm's status e.g. send a "postcard" to some, a one-page questionnaire to others, and a long questionnaire to the remainder to estimate the impact of questionnaire length on response rate. These alternatives may not be expensive since it will serve the more basic function of identifying the status of the responding firms, which must be done anyway.

SAMPLE AND INTERVIEW STRUCTURE AND DISPOSITION

Estimates of response and recovery rates are based on QER experience and enhanced where additional effort to boost response is anticipated. The study begins with roughly 12,000 firms in their first year of business. Assuming a response rate of about 40%, we expect about 5000 respondents and 7000 non-response.

After twelve months, the original 5000 respondents will be sent a second interview. It is assumed that 80% will respond. We have no data to base this estimate on, only an assumption that a respondent cooperating initially is very likely to do so again. This yields 4000 respondents with two years of data (exclusive of business failure).

The original non-response and the additional 1000 non-response from the second wave become subject to status verification. It is assumed in this discussion that no special projects are designed for this group. The first step in status verification is a match against the current NFIB file. Seventy (70) percent are expected to still be NFIB members and have current membership information on file.

For many of the firms no longer in the NFIB file (about 20% leave on average, but this may be higher for new firms), a report will be filed on the status of the firm and the reason for non-renewal. Thus, the NFIB field force may do much of the remaining status verification as part of their routine work.

The remainder of the 1500 firms not found in the NFIB file match or with status reports from NFIB field staff will then be sent a letter with a return card for verification of status and the collection of the equivalent of the NFIB membership file information.

Remaining firms (under 1000) will have status verified through the use of Yellow Pages, phone calls, personal site visits, etc. Note that all firms are followed, regardless of membership status in NFIB. This process is repeated in the second and third years.

STRUCTURE OF THE DATA SET

There are a number of data sources involved potentially in the construction of the final data base. They include:

1. NFIB interview data-panel questionnaire
2. NFIB file data-all firms initially
3. Non-response status verification data (if any)
4. Dun and Bradstreet data (including identifier-related information
5. ZIP CODE related data
6. CENSUS region and state data
7. CENSUS industry data
8. QER data (8000 firms each year, classifiable by any of the QER variables)

Thus, the basic NFIB reinterview data set can be supplemented and enriched by a wide variety of data.

REINTERVIEW AND FOLLOWUP PROCEDURES

The first year of the panel is the most crucial in terms of response and status verification. Thus, in the first month of the study, it will be important to do everything economically feasible to increase the response rate. In the thirteenth month, the time of the first reinterview, it is essential to document the status as many firms as possible in order to determine the representativeness of the responding sample in terms of firm size, sales, industry, region and survival (failures).

Response Rate

Experience with the QER indicates that we can expect about a 25% response rate to the first mailing of the questionnaire. If a second mailing is made to all sample members, an additional 5% to 8% of the sample will respond (after duplicates are eliminated), yielding a response rate of 30% to 33%. Although this figure is excellent for a mail questionnaire, higher response rates would improve the quality of the study in terms of coverage. Since we need to contact each firm to verify status in later stages requiring that some cost be incurred, it makes sense to use some of that expense to get a good interview rather than a simple status verification. The following proposed steps will be followed in the initial survey:

1. Mail 12,000

2. After three weeks, match the file of respondents against the sample file, select non-respondents, print labels and re-mail the questionnaire with a new letter from John Sloan, NFIB President.

3. After another three week period, select the remaining non-response, print labels, and mail a second appeal, somehow differentiated (e.g. printed on colored paper, some incentive, call and ask for participation etc.)

Status Verification

At the point of the first re-interview, it is very important to the quality of the study to verify the status of all sample members after 12 months have passed. Thus, some effort will be devoted to contacting each of the original non-respondents. The following procedures are suggested:

1. Match the non-response tape against the current NFIB file using the unique firm identifier. Isolate all firms that have RENEWED their memberships
2. Create a file of verified firms and those not on the file or with un-renewed records. Print out a set of mailing labels for the unverified firms and a listing of the firms, with telephone numbers.
3. Send a short postage-paid verification form to the unverified firms. Add responding records to the verified file. Print out second set of labels and firm list.
4. Use phone, telephone books, etc., to verify status of remaining firms. Add verified firms to verified firm file. Make list of remaining firms. Perhaps use field force or other methods to verify status. (Details later)

Just how carefully and completely these procedures might be applied in subsequent reinterview periods has not yet been decided. If it appears that the sample of respondents is not significantly different from the non-respondents in terms of sales, employment, industry, region, etc., and not different in terms of failure rates as documented at the time of the first reinterview, status verification may be terminated for non-respondents after the first or second year, focusing all of our attention and resources on verifying the status of firms that remain in the sample after the first reinterview.

"Characteristics of Entrepreneurs and Small Business Owner-Managers: A Review of the Literature*"

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Abstract

Today's entrepreneurs and small business owner-managers continually invent new products, services and businesses out of impossibilities. By employing a marketing niche strategy of "going where they ain't," these trail blazers of commerce defy the oddsmakers and organizational theorists by creating demand and markets, where none previously existed. Who are these individuals? Can anyone become an entrepreneur? More importantly, what characteristics or factors distinguish the entrepreneur and small business owner-manager from their organizational contemporaries?

This paper will initially focus the discussion on the new venture or small business sector as it is the most fertile environment for stimulating and nurturing entrepreneur and small business owner-managers. After examining the environment, the paper will move on to a review and critique of the existing literature examining the characteristics of entrepreneurs and small business owner-managers. Particular attention will be given to discussing the similarities and differences of these individuals to their big business counterparts.

* The author is indebted to Mary Ann Holl for her invaluable insight and editorial comments.

"Characteristics of Entrepreneurs and Small Business Owner-Managers: A Review of the Literature"

George T. Solomon

> Two shoe salesmen... find themselves in a rustic, backward part of Africa. The first salesman wires back to his head office: "There is no prospect of sales. Natives do not wear shoes." The other salesman wires: "No one wears shoes here. We can dominate the market. Send all possible stock."[1]

Introduction

Not unlike the two shoe salesmen, today's entrepreneurs and small business owner-managers continually invent new products, services and businesses out of impossibilities. By employing a marketing niche strategy of "going where they ain't," these trail blazers of commerce defy the oddsmakers and organizational theorists by creating demand and markets, where none previously existed.

Indeed, these mavericks of the free enterprise system are the current folk heores of the 1980's. Individuals no longer daydream about becoming "the man in the grey flannel suit," but instead hope to imitate the Steve Jobs, Ted Turners and Lee Iaccocas. The great American dream is still the opportunity to own, manage and control one's own venture.

Who are these folk heores? Can anyone become an entrepreneur? More importantly, what characteristics or factors distinguish the entrepreneur and small business owner-manager from their organizational contemporaries?

In order to understand these individuals, this paper will initially focus the discussion on the new venture or small business sector as it is the most fertile environment for stimulating and nurturing entrepreneur and small business owner-managers. After examining the environment, the paper will move on to a review and critique the existing literature examining the characteristics of entrepreneurs and small business owner-managers. Particular attention will be given to discussing the similarities and differences of these individuals to their big business counterparts.

Small Business Sector

The research on small business is not as extensive as its counterpart, big business. Numerous scholars have argued that the small business entity is all but forgotten when research in the area of business and economics is considered. McGuire offers some insight into the lack of research in the small business area. "One of the rare commonalities shared by scholars in economics, management science and organizational theory has been their almost universal lack of interest in the problems of the small business enterprise and the entrepreneur. To a large extent, this lack of scientific curiosity is a result of some rather unscientific preconceptions and biases.

For example, economists adhere firmly to their prior conviction that the small firm is the entrepreneur who attempts to maximize profits that they seldom have bothered to conduct further investigations into its behavior; to the modern management scientist, busy designing evermore elaborate mathematical models, the small firm is too small to warrant serious study.

Finally, to the sophisticated organizational theorist, the small business enterprise is too simple and too obvious: it contains no hierarchical chains; no Machiavellian power machinations; . . . no large and confused communications network; and no need to develop yet one more theory of leadership. To most scholars in these disciplines, then, the small company does not appear to promise the research challenge provided by the giant corporation. Rather, the problems of the small company seem to be uncomplicated and the solutions, in many cases, self-evident."[2]

Yet, with all these caveats, small businesses continue to play a vital part in the American economy. In fact, many of the foremost inventions of the 20th century were developed by small businesses, everything from the Vacuum tube to the Hover craft was developed in small firms. No doubt, as we move into the 21st century, small-scale enterprises will continue to lead the way in innovation and change. Because of their very size, smaller firms can adapt more readily to environmental (markets) changes.

Small businesses not only rate high marks for conceptual innovations, but for coming up with a new way of organizing older services. Containerization; the discount store; the motel; franchising the sale of hamburgers, fried chicken and other food products - these, among others, were ideas in the head of a small businessperson that proved fruitful and beneficial because our economy was ready and willing to change.

Collins, Moore and Unwalla in 1964 interviewed over 150 small businessmen in the Detroit, Michigan, area to examine what factors motivated individuals to start small businesses. They intended to support the contention that many an American has the dream, desire and hope of being his own boss. "The entrepreneurial dream beckons especially to the common man -- it is a dream of escape from the established and overly complicated social order and a dream of the opportunity to build a better place for himself."[3]

"It is in a sense a kind of permanent revolution, which does not call for direct attack on the established citadels of power. It represents for the ambitious individual an acceptable route for advancement and one which places upon the individual and his own efforts the responsibility for success or failure".4

This statement clearly describes the continuing trend from 1970-1985 of young, aggressive individuals who may have demonstrated against the establishment during the late 1960s, but finds themselves now opening small yogurt shops, computer software companies and health food restaurants. These individuals have not conformed to society, but instead of engaging in violent revolution, they are finding a path of counter-revolution by controlling their own destinies within their small businesses.

"Certainly the American symbolic dream of entrepreneurial success plays an important part in motivating many who start their businesses. It is also true that those who succeed have a unique fundamental ability and drive.

Nonetheless, the attractiveness of the entrepreneurial way of business life is questionable. Setting up a new business is no easy task. A competitive economy seldom welcomes newcomers."[5]

Entrepreneurship

In order to understand the individual entrepreneur it is important to examine the process or phenomena known as "Entrepreneurship. Entrepreneurship has meant different things to different people for the last eight hundred years "since entreprendre (With the connotation to do something) was in use as early as the twelfth century and in the course of the fifteenth century the corresponding noun developed." The related English terms of adventurer or undertaker (i.e., "Merchant Adventurers") were used from the fifteenth century on."[6] The first formal theoretical use of the concept of entrepreneurship appears in the work of Richard Cantillon around 1730.

Formal theories of entrepreneurship had to wait until the latter years of the mercantilist age to find their first expression in the work of Richard Cantillon who defined entrepreneurship as self-employment of any and every sort. As long as a person wasn't hired or working for wages then he was an entrepreneur--"the Beggars and even the Robbers are Undertakers."[7]

The critical difference between being of the class of entrepreneurs as opposed to the class of hired people was living with the additional uncertainty surrounding self-employment. According to Cantillon, the entrepreneur would buy at certain prices in the present only to sell at uncertain prices in the future. In order to "adjust themselves to risk" entrepreneurs could "proportion themselves in a state to the customers or consumption."[8]

The early nineteenth century industrialist, J. B. Say, expanded upon Cantillon definition and postulated on the characteristics of successful entrepreneurs as an adventurer or master-manufacturer possessing a number of desirable attributes and talents."[9]

Schumpeter, who has been referred to as the father of modern entrepreneurial thought, propounded the view that the entrepreneur was unlike "heads of firms or managers or industrialists who merely may operate an established business."[10] The entrepreneur distinguished himself by "carrying out new combinations" of production forces (i.e., enterprise)."[11] The entrepreneur's challenge was to find and use new ideas to jostle the economy out of otherwise repetitive cycles of activities.

Schumpeter recognized a range of possible alternative combinations which may initiate entrepreneurial action including (1) new products or services, (2) new methods of production, (3) new markets, (4) new sources of supply and, (5) new forms of organization."[12] As socio-economic innovators, entrepreneurs were different from speculators and inventors. They were creators of new business combinations.

Schumpeter recognized that new combinations are introduced via the vehicle of new businesses. Part of the entrepreneurial function was the "founding of new business." However, the founding of a business was a largely undifferentiated concept within the Schumpeterian view of things. Schumpeter noted that "special aptitudes" were required to "obtain the necessary credit" and "set up the organization."[13] Yet he did not elaborate on the skills or processes involved.

"The promoter may indeed be, as we say, the purest type of the entrepreneurial genus. He is then the entrepreneur who confines himself most strictly to the characteristic entrepreneurial function, the carrying out of new combinations."[14]

Since the pioneering work of Schumpeter, the study of entrepreneurship and enterprise development has aroused interest in both academic and professional circles. The first focused on various characteristics of the entrepreneur. Here the hope was to find those traits or other factors that differentiated successful entrepreneurs from other individuals, for if this could be done, our limited national and organizational resources could be more effectively directed to those persons most likely to succeed.

The second line of inquiry involved an examination of the evolution of new enterprises over time. Here the purpose was to discern those characteristics that distinguished successful from non-successful enterprises at each "stage" of their development.

Classification of Entrepreneurs

Entrepreneurs tend to fall into two classes, those who were pushed into ownership and those who chose it of their own free will. In the first case, those individuals who were forced into starting a business probably gave little attention to selecting a business they were qualified to run. These individuals are what Al Shapiro labeled "Displaced Entrepreneurs." The latter case, those who freely chose to start a business, often perceived a need in the market and were able to develop a plan to fulfill that need through the ownership of a small business.

Many writers have attempted to identify and to classify what they believed were characteristics uniquely attributable to entrepreneurs. Among the individuals who have written about this phenomenon are White, Tate, Pickle, Stegall, Steinmetz, and Kline. Basically, all of them perceived a set of characteristics which seemingly were unique and attributable to entrepreneurs. Among the more frequently cited characteristics in each classification scheme were (1) the desire to be independent, (2) identity with the business and (3) a sense of accomplishment.

The general view held by these writers is that entrepreneurs were independent, hardworking individuals who wanted complete control over their actions in relation to their business. Additionally, Megginson, Levinson and Liles supported the classification schemes illustrated in Table 1 and offered additional insights into what they perceived were characteristics of small business owner-managers.

Megginson offered additional characteristics he believed were indicative of small business owner-managers. He believed that entrepreneurs by their very make-up, tend to possess characteristics which hamper the firm's growth.

Table 1

Characteristics of Owner-Managers

WHITE

1. Initiative
2. Drive
3. Capability of Decisive Action
4. Self-Confidence
5. Imagination
6. Flexibility
7. Sense of Timing
8. Hard Work
9. Desire to Acquire More Skills

PICKLE

1. Satisfying Work
    a. A sense of accomplishment
    b. Creation and achievement in managing an enterprise
2. Ego Identification with the Business
    a. The firm is an extension of the owner-manager's own being
    b. Personal pride
3. Their Own Boss
    a. Total responsibility for the decisions of the firm
    b. Controls own destiny-independence
    c. Rewards received are in direct proportion to how well they perform in their firm
4. Expectations of Future Wealth
    a. Long-term positive benefits vs. short-term
    b. Accomplishment of a grandiose future success
5. Status
    a. Perceived status by owner-manager more important to the individual satisfaction than actual status assigned by other people

STEGALL, STEINMETZ & KLINE

1. The desire to be one's own boss; to work when one wants to work and to look up to no one.
2. The self-made objective that it is necessary to succeed, to "prove" one's ability.
3. A social consciousness, to innovate and create something useful for society.
4. An involvement because of real or imagined talents outside one's present job or profession.

TATE

1. A great sense of independence
2. A strong sense of enterprise
3. Equal concern for personal and professional considerations
4. Enters business by chance more than by design
5. Limited form education
6. Expects quick and concrete results
7. Jealously guards their time

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> "First, if the entrepreneur proves to be inefficient and if his initiatives or abilities are not sufficient, the business will flounder and eventually fail. Second, if the entrepreneur is mediocre, the business will continue to be small and will be constantly plagued with problems associated with smallness. Third, if the entrepreneur proves to be efficient and capable and the business succeeds, then he runs the risk of losing the very thing which drove him to start a business, autonomy and control."[15]

This last point, as described by Megginson, is central to the perception of most entrepreneurs that success and its rewards will bring about a loss of autonomy. Closely related to that perception is the belief by most entrepreneurs that seeking help is admitting failure and ultimately will also lead to a loss of control over the firm's operation. These perceptions do not encourage entrepreneurs to be "open" about their shortcomings, and in fact, foster an atmosphere in which most seem unwilling to accept and admit their limitations.

One of the more frequently cited characteristics of an entrepreneur in the literature is the ego identification with the business. Many entrepreneurs believed that the business is nothing more than an extension of themselves. Levinson supports the contention that the business is an extension of the individual's own being.

"For the small business entrepreneur, the business is essentially an extension of themselves, a medium for their personal gratification and achievement. Entrepreneurs have an unconscious need to continually demonstrate their own competence. They tend to individually run their business, to perpetuate the perception that 'they' alone make their business succeed."[16] In keeping with that, Liles believes that the issue of social self-image is a major influence on individuals going into new ventures.

He wrote that individuals going into new ventures need to deal with the issues of "self-assessment and self confidence."[17] These issues are important, as the individual going into business must exhibit a high degree of confidence to overcome all obstacles, but with the realization or assessment that in some cases he may need help. Liles went on to further state that if individuals lose their self confidence, "they not only lose their ability to function effectively in the professional arena, but also in the personal arena". [18] This being the case, the effect is more devasting for the small business entrepreneur because the professional and personal are closely integrated, if not the same.

The importance of Levinson's and Liles' concepts is One, the issue of "self-image," and the entrepreneur; how the individual entrepreneur perceives himself/herself may indicate their reluctance in seeking assistance. Two, Liles and Levinson realized that the business, especially a small business, was an extension of the individual entrepreneur's personality.

These two points, "self-image" and the business as an extension of the individual's personality, indicate a strong association between the actions of the individual and the actions of the small or new business.

Similarly, David McClelland has conducted extensive research in which he has attempted to prove that an individual's need to achieve is related to his ability to be a successful entrepreneur. David McClelland is regarded as a major contributor among the researchers who have attempted to examine the need for achievement, "N-Ach," in entrepreneurs and its effect on the probability of success in small business.

McClelland perceived that parallels existed between the need for achievement and the "Protestant Work Ethic." "Achievement is the desire to do something better, faster, more efficiently, and with less effort. It is not a generalized desire to succeed, nor is it related to doing well at all sorts of enterprises."[19] In contrast, it is hard work, long hours and perseverance that have traditionally formed the foundations of the "Protestant Work Ethic." McClelland linked people possessing a high level of "N-Ach" as generally interested in efficiency, in finding short cuts, and in getting the same results with less effort. These qualities are often used to describe successful entrepreneurs.

Harry Schrage conducted research on specific entrepreneurs, not only to support McClelland's research, but also to build on this research and propose an additional trait, "veridical perception,"[20] as differentiating successful from unsuccessful owner-managers. He believed that entrepreneurs could only be successful to the extent that they "veridically perceived their environment."[21] Schrage defined veridical perception as the "act of recognizing people, things, or situations as they truthfully are, rather than attributing to them qualities which are products of one's emotion and imagination."[22]

Schrage believed individuals going into business made certain assumptions about the environment, and then proceeded. They observed their results, measured their present situations against their previous assumptions, modified where needed, and moved on. Schrage contended that individuals lacking "veridical perception" were developing erroneous future policies based on false or distorted data.

"Forrester, in discussing the growth of new businesses, stressed the need for an accurate assessment of the market's response to the company's price, service and quality. Drucker attributes business success to management's ability to determine the need of the market accurately and to fulfill those needs. Schein maintains that accurate perception of the nature of each person with ability within the organization is important. Fielder goes one step further by showing, on repeated trials, a strong correlation between an individual's ability to accurately perceive differences among people and the effectiveness of the business."[23]

Characteristics of Small Business Owner-Managers

In reviewing the literature on small business owner-managers, especially factors affecting the probability of success in a small business, there was considerable attention given to characteristics of these individuals. Many researchers attempted to identify and to isolate characteristics and to examine their association to the probable success of the small business. As stated throughout this study, the business, itself, is merely a psychological extension of the individual.

For the purposes of this article, only the empirical works of Pickle, Collins, Moore and Unwalla, Hornaday and Aboud, and Gilmore will be discussed. Table 2 presents a summary of their efforts. Pickle's research effort was primarily concerned with the effect the owner-manager's personality characteristics had on the success or failure of a small business. Pickle's major hypothesis was, "Do successful small business owner-managers have certain personal characteristics such as (1) thinking ability, (2) human relations ability, (3) communications ability, (4) drive, and (5) technical knowledge -- that are partially or wholly lacking in unsuccessful owner-managers?"[24]

Pickle defined "personal characteristics" as "those aspects of an individual's make-up developed from the interactions of personality traits and aptitudes produced by numerous environmental and hereditary factors."[25]

"A more comprehensive criterion -- particularly in judging the success of the owner-manager -- is how well all of the parties-at-interest are satisfied. A survey of the literature revealed these parties-at-interest to be customers, owners, employees, suppliers, communities, competitors, creditors, and the government."[26]

Pickle's research attempted to show an association between the personal characteristics of successful owner-managers and the probability of success in a small business. He believed that if an owner-manager exhibited proficiency in the aforementioned personal characteristics of thinking, communications, human relations, drive, and technical knowledge, then the probability was high that the firm would become successful. Pickle's research was able to show that certain characteristics do exist in successful small business owner-managers that differentiate them from other owner-managers.

At the same time, 1964, that Pickle was conducting his research on Texas small business owner-managers, Collins, Moore and Unwalla were conducting in-depth interviews with 150 Michigan owner-managers. Collins', Moore's, and Unwalla's research attempted to show that there were certain obvious characteristics that differentiated entrepreneurs who created their own businesses from executives in large-scale, established companies. The entrepreneurs were labeled as "Enterprising Men" [27] by the researchers.

Collins, Moore and Unwalla concluded that the essential difference between the entrepreneur and the business manager "lies in the area of their mode of approach to the world around them."[28] Basically, entrepreneurs could not function in the traditional organizational setting and sought an outlet for their creativity and desire to be "in charge."

As a result, they started their own businesses. Individuals establish new businesses not as an isolated career strategy, but as a learned response to their total social, emotional and economic environment."[29]

The pioneering research efforts to classify selected entrepreneurial characteristics done by Collins, Moore and Unwalla led Hornaday and Aboud to conduct research they hoped would identify and measure the personal characteristics of those individuals who have successfully started a new small business. Hornaday's and Aboud's research examined the psychological nature of successful entrepreneurs.

Table 2

Summary of Empirical Research on Characteristics of Owner-Managers and Probability of Success in Small Business

Researcher(s)	Survey Instrument(s)	Population Examined	Sample Size (N=X)	Dependent Variable	Independent Variable	Type of Primary Research	Statistical Test(s)
Pickle	Gordon Personal Profile Gordon Personal Inventory Watson-Glaser Critical Thinking General questionnaires to determine success	Texas small business owner-managers	100	Success in small business	Certain characteristics	Standardized surveys; Informal interviews; Specialized psychological tests	Rank Correlation Analysis
Collins, Moore & Unwalla	Thematic Appreception Tests (TAT) Structured Interviews	Michigan entrepreneurs	150	Entrepreneur	Background characteristics which would discriminate an entrepreneur from an organizational manager	In-depth Interviews; Standardized psychological tests	Means, cross tabulations
Hornaday & Aboud	Kruder Occupational Interest Gordon Survey of Interpersonal Values Edwards Personal Preference Schedule	Entrepreneurs located in N. Carolina, Rhode Island and/or Massachusetts	60	Successful entrepreneurs	Personal characteristics	Standardized psychological tests	T tests frequencies
Gilmore	In-depth Interviews Ring-toss exercise Thematic Appreception Test (TAT) Structured questionnaire Allport-Vernon Study of Values	Members of Oklahoma's Young President's Organization operating a small manufacturing business	21	Successful entrepreneurs	Certain behavioral modes/characteristics	Standardized psychological tests	Chi-Square test of significance Correlation Analysis

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Hornaday and Aboud based their research on two assumptions: "(1) that there would be great value in a system of selection that is objective and structured so that non-psychologists could administer it, and (2) that in addition to the admittedly important "N-Ach," there may be other factors which should be measured in terms of predicting success."[30]

Initially, Hornaday and Aboud hoped to isolate, identify and measure the difference between a successful and an unsuccessful entrepreneur. However, based on their sample, they abandoned this effort and only analyzed the data from their sample against standardized data on all men found in the general population. Both structured interviews and completion of various psychological tests were used to gather the primary data for this study.

Hornaday and Aboud believed that if these scales differentiated their sample of successful entrepreneurs from the general population of men, then it was possible that these scales could differentiate successful from unsuccessful entrepreneurs. Both researchers recommended that further research using objective tests should be administered to samples of entrepreneurs to develop better validity of predictability. They believed that these objective tests could yield more definitive results on the variables which differentiate successful from unsuccessful entrepreneurs.

Each of the three previously-discussed studies has dealt with a specific conceptual model and its ability to either (1) identify personal characteristics which differentiate small business owner-managers from the general population of organizational managers or (2) identify personal characteristics which differentiate successful from unsuccessful small business owner-managers.

The final research study to be discussed is the effort of John Gilmore. Gilmore did not propose any new conceptual models, but examined seven models and their ability to predict successful from unsuccessful small business owner-managers when applied to the same sample.

Gilmore's research effort was both to "field test previously developed models and to examine certain new predictive instruments or methodologies to aid in an early identification of a potentially successful entrepreneur."[31] His research was designed to serve as a compilation of many individualistic approaches designed by various researchers to measure success. Gilmore attempted in his study to examine as many of these models as possible to determine which had the highest probability of predicting success.

Gilmore examined how each of the six behavioral models and the one financial model attempted to associate a particular variable with running a successful small business. Table 3 presents a summary of the six behavioral models and the various variables that were isolatd and measured for their effect on the success of a small business.

As a result of his research, Gilmore suggested that "(1) a better instrument be developed to incorporate only those variables with a probability of predicting success; (2) that an obvious need existed to test the proposal that there are significant personality and biographical differences between

Table 3

Summary of Models Examined by John Gilmore

Collins, Moore and Unwalla	McClelland	Schrage	Atkinson	Smith	Allport-Vernon
Personal Characteristics	Individual Needs	Veridical Perception	Tendency to:	Entrepreneurial Typologies	Values of Entrepreneurs
a. Age b. Sex c. Marital status d. Work week e. Nativity - parents' & owner-manager's f. Educational level g. Religion h. Father's occupation i. Number of previous businesses owned	a. Need for Achievement b. Need for Power c. Need for Affiliation	Anxiety a. Debilitative b. Facilitative	a. Achieve Success (T_s) b. Avoid Failure (T_f)	a. Opportunistic-Entrepreneurs (O-E) b. Craftsman-Entrepreneurs (C-E) Entrepreneurial Firm Typologies a. Rigid b. Flexible	

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successful and non-successful owner-managers as well as between small business owner-managers and large firm managers; and (3) further research needs to be directed into other possible variables which might be important to explaining the behavior of owner-managers."[32]

Pickle; Collins, Moore and Unwalla; Hornaday and Aboud; and Gilmore all attempted to examine the level of association between certain personal characteristics of the owner-manager and the probability of success in a small business. Only Gilmore examined or tested more than one model and in all four studies, the results were less than conclusive. However, these studies do show that personal characteristics of owner-managers do affect in some way the overall process of decision-making and the running of a small business. Realizing this fact, and acknowledging the difficulty in isolating and measuring the full spectrum of personal characteristics of the owner-manager, this study will treat the variable, "personal characteristics of the owner-manager," as an intervening variable.

Generally, the research of all four efforts lacked a national sample, rigorous methodology and sophisticated statistical analysis. Research in the field of small business has been constrained by an inability to obtain a large sample and has been hindered by time, lack of money and the non-availability of a national list. From a methodological stand, the research effort of the combined researchers failed to develop a standardized instrument capable of being analyzed with higher-level statistical analysis. In most cases, the data was nominal and they did not attempt to develop precise scaling techniques. Only Hornaday and Aboud realized this issue and attempted to move in a direction of developing more objective instruments to measure and to identify characteristics of successful small business owner-managers.

Final Comments

In the 1980s in the United States, during a time when leading economists on all sides of the political spectrum were predicting worldwide depression, America's entrepreneurs made a defiant statement of their optimism and faith. They started new companies at a rate of nearly 600,000 a year, more than ever before in history and more than six times the number begun annually in the supposedly thriving years of the 1950s."[33]

Venture capitalists poured unprecedented billions into thousands of start-ups in a range of radically new technologies, from bioengineering to fiber optics. Scores of new semiconductor and computer firms rose up in the face of massive efforts by giant Japanese corporations in league with a commercially ambitious government. Wildcat oil and gas prospectors fanned out across the country and around the world in the face of sinking prices and a short-term glut of oil."[34]

The literature on small business owner-managers and entrepreneurs continues to evolve and it offers a unique challenge to future scholars, teachers and researchers. As with the early settlers of the American West, the study of small business is fertile and untamed environment full of various myths and rumors. Small businesses are not simply the "Ma and Pa corner store," they are the testing ground for tomorrow's managers and corporations.

According to the trends of the past 25 years, the American business sector will again rely on small businesses to stimulate employment and spur new innovations in technology and product development. With this trend in mind, it becomes vital that researchers continue to examine why people start and fail at their small businesses, and to pursue more completely those questions explored and examined by this study.

Footnotes

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"VALUE PROFILES OF ENTREPRENEURS"

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ABSTRACT

A sample of 200 owners of small firms were surveyed. All respondents were administered a demographic data form and the Rokeach Value Survey. The latter is an instrument used to determine two hierarchies of value importance for each respondent, a terminal value system and an instrumental value system. The results were analyzed to determine the value profiles of entrepreneurs. Research implications and recommendations for further research are included.

" VALUE PROFILES OF ENTREPRENEURS "

INTRODUCTION

Literature is replete with descriptions of the personal characteristics considered to be common among entrepreneurs. Research efforts in this area, however, tend to generalize in a subjective manner the personality make-up of entrepreneurs. It is therefore difficult to paint a portrait of an entrepreneur, or small business owner, because of the conflicting results of studies in the field.

According to a recent survey by VENTURE magazine, the most important personality trait for the successful entrepreneur is an all-consuming desire to succeed. Other traits considered necessary are the fortitude to overcome failure, fear of failure, a high energy level and lust for life, the ability to focus attention on a single goal, self-confidence, good physical and mental health, the desire to be in control, an open and creative mind, luck, and persistence (10). Persistence sets the successful entrepreneur apart from others because entrepreneurs average 3.8 failures before enjoying a final success. Considerable feelings of self-worth therefore are essential (17).

Many writers assert that risk bearing is a prime characteristic of an entrepreneur (11,18,19). Other writers have noted that initiative, innovation, ambitious, aggressive, responsible and numerous other characteristics reflect the entrepreneurial personality (8,15).

It can be seen from the above that a major obstacle that prevents the attribution of characteristics to entrepreneurs is the great diversity of sources from which writers derive the identified characteristics. Many works are innovative, or anecdotal, describing the authors' personal conclusions drawn from readings. On the other hand, empirical studies draw from diverse samples. McClelland's (11) entrepreneurs were in fact business executives representing various functional specialties (3).

In summary, it is difficult to describe the profile of an entrepreneur from the attitudinal and behavioral characteristics found in the literature. The purpose of this paper is to attempt a more rigorous approach to the description of entrepreneurs, that is, to describe entrepreneurs in terms of their values. Several benefits of such an approach are discussed.

VALUES AND VALUE SYSTEMS

There is considerable research which strongly suggests that the key elements in the understanding of human behavior are values and value systems. Each person has his own values which stem from his previous experiences, sentiments, attitudes about himself, the obligations he feels towards others, his ideals and his objectives and goals (12). Although it is clear that there is a certain genetic base for preference functions, this represents a very small proportion of the total for human beings. This is because the value system built in by the genetic system shrinks to a point where practically the whole of man's value structure is learned from information inputs of all kinds.

Clearly it is the cultural and social values which provide the basis for the formation of a person's values. Culture refers to the complex of values, ideas, attitudes and symbols created by man to shape human behavior. Both the social culture and the organizational or institutional culture are very real parts of an individual's environment. Functionally, a cultural value system is the set of principles whereby conduct is directed and regulated, providing guidelines both for individuals and social groups. Thus, the value system in which a person lives clearly impinges upon his daily life (1). After a value is learned, it becomes integrated into our organized system of values wherein each value is ordered in priority with respect to other values.

Rokeach has written that values provide standards that guide behavior. They are multifaceted standards which lead individuals to take particular positions on social issues, predispose a favoring of one particular political or religious ideology over another, guide representations of the self to others, and provide a basis upon which one may evaluate or judge. For example, individuals employ values to ascertain whether or not they are as moral or competent as others. Further, values are not only employed to persuade and influence others but to provide a yardstick as to what belief, attitudes or actions of others are worth challenging or attempting to influence or change. Thus, Rokeach has defined a *value* as being "an enduring belief that a specific mode of conduct or end-state of existence is preferable over any other specific mode of conduct or end-state of existence." (14)

Rokeach has defined a *value system* as being "an enduring organization of beliefs concerning preferable modes of conduct or end - states of existence along a continuum of relative importance." (14) Value systems are assumed to function as general plans employed to resolve conflicts and to make decisions. Because given situations may activate several values within an individual's value system, rather than a single one, it is unlikely for an individual to behave in a manner equally compatible with all of them. For example, a given situation may activate a conflict between strivings for salvation and hedonic pleasure or between self-respect and respect for others.

In summary, values provide standards that guide behavior. Value systems are assumed to function as general plans to resolve conflicts and to make decisions. All persons possess the same values but to different degrees, the antecedents of which can be traced to culture, society, and its institutions. Behavioral differences among individuals, therefore, may be ascribed to the different priorities in which these values are held. Since there are intrinsic differences among individuals, these differences may very well produce differential responses (13). Stated differently, individuals are constantly being bombarded with a multitude of physical and psychological stimuli, but the human being is so constituted that one lacks the capability to take all of these into account. The person thus chooses those stimuli he or she will attend to or act upon. These choices are made on the basis of the person's values (9).

THE MEASUREMENT OF VALUES

As discussed above, values play a predominant role in one's behavior and have a considerable effect on how one perceives his or her environment. Describing entrepreneurs in relation to their values, therefore, may provide us with a more rigorous and productive method of research than currently exists in this area. To do so, a rigorous and theoretically acceptable method of measuring values is essential.

The question of how to assess and measure values has received considerable attention. A review of the literature reveals that few, if any, consistently reliable and valid value measuring instruments exist. One of the most popular measuring techniques was the Allport-Vernon-Lindzey Study of Values (2). Two other instruments which have been used in behavioral research are Gordon's Survey of Personal Values (7) and England's Personal Value Questionnaire (5). Currently, the comparatively new and somewhat popular form of measuring values is the Rokeach Value Survey (14). Probably most of the current research being done on values has utilized this particular tool.

The Rokeach Value Survey is the product of many years of research regarding the nature, origins, and consequences of human beliefs, with its final thrust aimed directly at the concept of human values. The survey provides a basis for a systematic value approach to the study of human problems which, in many ways, overcome deficiencies noted with respect to other value approaches. The Rokeach Value Survey consists of two lists, one of 18 terminal values and the other of 18 instrumental values. The terminal values represent certain end-states of existence. Individuals should be able to say "I believe that such-and-such an end-state of existence, for example, salvation or a world at peace, is personally and socially worth striving for." (14)

A second list of 18 values, called instrumental values, represent certain modes of conduct. Individuals should be able to say: "I believe that such-and such a mode of conduct, for example, honesty or courage, is personally and socially preferable in all situations with respect to all objects." (14) The Value Survey requires that each list be ranked in order of importance, with the respondent selecting the one value that is most important to him or her, then the next important value, and so on. Ranking of the two lists of values results in two hierarchies of value importance for each respondent, a terminal value system and an instrumental value system.

METHODOLOGY

The study sample included 200 Orange County, Florida, entrepreneurs whose names were randomly drawn from the 1984-85 Directory of Florida Industries (4). The Directory provides the name of the company, its location, mailing address, head official (owner, president, etc.), telephone number, number of people employed (male, female, total), Standard Industrial Classification, and company product(s).

The data collection package consisted of a cover letter, personal demographic form, Rokeach Value Survey, and a self-addressed, stamped envelope in which to return the data. The cover letter stated the purpose of the research and guaranteed respondent anonymity, except with respect to the researcher. Respondents also were promised a summary of the research results. With the latter in mind, respondents were advised to keep a copy of their own individual terminal and instrumental value profiles. Comparisons of individual value profiles with that of the resulting group value profile, if so desired, could then be made.

Eighty six (43 percent) participants returned the survey. The usable value surveys amounted to 77, giving a response rate of 38.5 percent.

The personal demographic form requested personal information such as the respondent's sex, age, education, race, income, religion and entrepreneurial status. These data were obtained in order to facilitate value comparisons between sub-groupings within the overall sample, if desired at some future date.

The Rokeach Value Survey data was used to provide a tabulation of the research sample medians and rank order composites for terminal and instrumental values, respectively. The rank order of the medians, called by Rokeach, the composite rank order, is used not only as a general index of the relative position of a particular value in the total hierarchy of values but also for comparing the position of a particular value across groups. It should be noted that there are times when the magnitude of the medians and the composite rank orders do not correspond or are inconsistent with one another. The two measures are employed only for convenience of description. They do not enter into calculations or statements of statistical significance.

Techniques available through the Statistical Analysis System (16) provided cumulative personal data, as well as terminal and instrumental value profiles!

FINDINGS

Research findings resulted from: (1) a review of the personal demographic data provided by the entrepreneurs responding to the survey; (2) terminal and instrumental value profiles of the respondents; and (3) comparisons between the terminal and instrumental value profiles of various subsets of the sample data.

Personal Demographic Data

Cumulative personal demographic data are shown in Table A. The majority of entrepreneurs responding to the survey were male (93.5%), between 30-59 years old (62%), and most of them had a college degree or more (63.7%). Almost all of the respondents are Caucasian (98.7%) and have an annual income of over $90,000 (68.8%). Of the various religious faiths represented, the largest percentages are Episcopalian (19.5%) and Presbyterian (18.2%). There are 14.3% who classified themselves as "other" or "none".

With respect to entrepreneurial status, 53 or 68.8% of the respondents are owners of closely-held corporations. The majority employ less than 500 employees (88.5%). Time in business as an entrepreneur equally spans a period from less than five years to less than twenty years, with the exception that 36.4% have over 20 years in business.

The companies directed by these entrepreneurs were either founded by the respondent (53.2%) or by a member of the respondent's family (36.4%). They are primarily corporate in nature (92.2%) with 96.1% being privately or family-owned. Business classifications included service, retailer, wholesaler, construction and others. Service (27.3%) and construction (27.7%) organizations predominate.

In summary, the entrepreneurs included in this report were primarily white Protestant males who directed businesses which were founded and owned by

TABLE A

Personal Demographic Information on Entrepreneur Sample

DEMOGRAPHIC VARIABLE	Entrepreneurs	
	Number	Percentage
SEX		
MALE	72	93.5
FEMALE	5	6.5
Age		
20-29	3	3.9
40-49	20	26.0
50-59	25	32.5
60-69	17	22.1
70+	2	13.0
Education		2.6
Some High School	3	3.9
High School Diploma	7	9.1
Some College	18	23.4
College Degree	28	36.4
Postgraduate	21	27.3
Race		
Caucasian	75	98.7
Black	2	1.3
Hispanic	0	0.0
Other	0	0.0
Income		
$10,000 - 19,000	0	0.0
20,000 - 29,000	4	5.2
30,000 - 39,000	4	5.2
40,000 - 49,000	3	3.9
50,000 - 59,000	3	3.9
60,000 - 69,000	2	2.6
70,000 - 79,000	5	6.5
80,000 - 89,000	3	3.9
90,000	53	68.8
Religion		
Catholic	9	11.7
Episcopalian	15	19.5
Lutheran	2	2.6
Presbyterian	14	18.2
Congregational	2	2.6
Methodist	10	13.0

TABLE A (cont.)

	Number	Percentage
Baptist	9	11.7
Judaism	5	6.5
Other	11	14.3
Entrepreneurial Status		
Self-employed	13	16.9
Owner-manager of Small Business	11	14.3
Owner of Closely-Held Corporation	53	68.8
Company Size (#people employed)		
10	19	24.7
50	25	32.5
100	22	28.6
500	8	10.4
750	2	2.6
1,000	0	0.0
1,000+	1	1.3
Time in Business		
< 5 yrs.	11	14.3
< 10 yrs.	13	16.9
< 15 yrs.	12	15.6
< 20 yrs.	13	16.9
> 20 yrs.	28	36.4
Public Accountability		
Stock Outside Company	3	3.9
Family/Private Ownership	74	96.1
Company Founded by		
You	41	53.2
Family	28	36.4
Other	8	10.4
Company Organization		
Corporate	71	92.2
Partnership	2	2.6
Sole Proprietor	4	5.2
Company Classification		
Service	21	27.3
Retailer	13	16.9
Wholesaler	10	13.0
Construction	21	27.3
Other	12	15.6

either themselves or their families. Their businesses are relatively small in terms of numbers of people employed, however, most of the businesses are incorporated and generate an annual income of over $90,000 for their owners. The respondents have been in business for various lengths of time with a little more than one-third of them having been in business over 20 years. Most of the entrepreneurs own companies that are either in the service or construction industries.

Value Profiles of Entrepreneurs

Terminal Values. Terminal values have been previously defined as an individual's beliefs concerning end-states of existence. Data concerning the terminal values of the entrepreneurs are shown in Table B. Terminal value medians and composite rank orders for each value are listed for the entire sample. The data reveal that the entrepreneurs, as a group, rank pleasure and true friendship as the two most important terminal values, followed closely by a sense of accomplishment, a comfortable life and salvation. The selection of pleasure as the most closely held terminal value is surprising. This hedonistic value is moderately important during early adolescence and then becomes less and less important with age. It is normally ranked about fourteenth or fifteenth by Americans whose demographics fit those of the respondents in this study. True friendship is also somewhat surprising. This value is normally ranked ninth by individuals whose demographics appear to be similar to that of the entrepreneurs studied. This value is similar to pleasure in that it starts out relatively important in early adolescence but becomes increasingly less important later in life. Perhaps entrepreneurial status plays a role, unknown at this time, which increases the importance of this value.

The least important terminal value held by these entrepreneurs is wisdom. Why this value is ranked lowest of the eighteen terminal values by entrepre-

TABLE B

Terminal Value Medians and Composite Rank Orders for the Sample of Entrepreneurs

VALUE	N = 77	RESEARCH SAMPLE--ALL ENTREPRENEURS	
		Median	Composite
A Comfortable Life		8.0	(4)
An Exciting Life		9.0	(9)
A Sense of Accomplishment		8.0	(3)
A World at Peace		9.0	(7)
A World of Beauty		9.0	(8)
Equality		9.0	(10)
Family Security		10.0	(13)
Freedom		10.0	(12)
Health		9.0	(6)
Inner Harmony		11.0	(15)
Mature Love		12.0	(17)
National Security		11.5	(16)
Pleasure		6.0	(1)
Salvation		8.0	(5)
Self-Respect		10.0	(11)
Social Recognition		10.5	(14)
True Friendship		6.0	(2)
Wisdom		14.0	(18)

Note. Figures shown without parentheses are median rankings and, in parentheses, composite rank orders.

TABLE C

Instrumental Value Medians and Composite Rank Orders for the Sample of Entrepreneurs

VALUE	RESEARCH SAMPLE--ALL ENTREPRENEURS	
N = 77	Median	Composite
Ambitious	8.0	(1)
Broadminded	8.0	(2)
Capable	9.0	(7)
Clean	9.0	(6)
Courageous	10.0	(15)
Forgiving	10.0	(14)
Helpful	9.0	(8)
Honest	9.0	(3)
Imaginative	9.0	(5)
Independent	10.0	(12)
Intellectual	9.5	(10)
Logical	10.0	(13)
Loving	9.0	(4)
Loyal	12.0	(17)
Obedient	9.5	(11)
Polite	9.0	(9)
Responsible	11.0	(16)
Self-Controlled	13.0	(18)

Note. Figures shown without parentheses are median rankings and, in parentheses, composite rank orders.

neurs is unknown. Other groups who have completed this survey tend to rank *wisdom* sixth, seventh or eighth of the eighteen values. Three other values ranked at the bottom of the terminal value list were *mature love*, *national security* and *inner harmony*.

Instrumental Values. Instrumental values have been previously defined as an individual's beliefs concerning desirable modes of conduct. Table D contains instrumental value medians and composite ranks for the sample of entrepreneurs as a group. The two most important instrumental values held by these entrepreneurs are *ambitious* and *broadminded*. Other closely held values included *imaginative*, *clean*, *capable*, *helpful*, and *polite*. *Ambitious* and *broadminded* seem to concern self-actualization. They tend to increase steadily during the adolescent years to assume a position of major importance in late adolescence and beyond. *Ambitious* is normally ranked sixth, seventh or eighth by most groups of American adults. Its greater importance to entrepreneurs, however, is not surprising. *Broadminded* is normally ranked sixth or seventh by adult Americans. Its higher ranking by entrepreneurs may suggest greater capacity for creative or lateral thinking on the part of these individuals. It should be noted that the terminal value, *pleasure*, and the instrumental value, *ambitious*, have been found to be ranked higher by individuals who tend not to join organizations or causes associated with civil rights or equality.[2]

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[2] Why the entrepreneurs rank certain values high or low is subject to interpretation and is therefore influenced by the values of the interpreter. For example, values that are ranked low do not always indicate values already possessed and therefore taken for granted. Neither do values ranked high suggest that these are values people strive for because they are unavailable. It may be that one already has it but wants more of it. Thus the findings outlined in this report are intended purely as an attempt to describe entrepreneurial values, rather than an attempt to explain why the values are ranked as they are.

The instrumental value which was listed as least important to the entrepreneurs is self-controlled. Self-controlled is a value normally ranked about ninth by most adult Americans. The fact that it is ranked significantly lower by the entrepreneurs may indicate that self-restraint is seen as restrictive relative to creative, innovative or risk-taking ventures.

CONCLUSIONS

The entrepreneurs in this study reported that the terminal values they hold most closely are pleasure and true friendship. Instrumental values held most closely by the entrepreneurs are ambitious and broadminded. The terminal value of least importance to the entrepreneurs is wisdom. The least important instrumental value is self-controlled.

The above findings appear to suggest that entrepreneurial values differ significantly from other adult Americans with similar demographics. On the other hand, an overview of the value data suggests that, with noted exceptions, the majority of terminal and instrumental values tend to be ranked about the center of their respective lists. This indicates that the entrepreneurs differ among themselves considerably. For example, values ranked first by some entrepreneurs are numbered eighteenth by others. It may be concluded, based on the results of other value research results, that the entrepreneurs studied are not a homogenous group of individuals.

LIMITATIONS OF THE STUDY

Several factors suggest that caution should be used in generalizing the results of this study. The total sample for this study was drawn from a single area (Central Florida) of the United States. Consequently, it may be measuring the values of entrepreneurs in a regional area and may not be representative of entrepreneurs as a group. Further, it is unknown whether or not the value profile would be significantly different if all entrepreneurs who were mailed the survey had returned it. One must wonder how the values of the entrepreneurs who failed to respond compared with the values of those entrepreneurs who did respond.

IMPLICATIONS FOR FURTHER RESEARCH

This study was perceived by the author as part of an on-going research project. It resulted from a previous study which reviewed the relationship between creativity and values from a theoretical basis, particularly as that relationship might apply to entrepreneurship. A theoretical relationship between these two subjects was suggested (6). In order to more rigorously investigate such a relationship, an empirical study appeared essential. Therefore, empirically derived data on both entrepreneurial values and creativity was required.

Because only limited value data on entrepreneurs were evident in the literature, this study was undertaken. It is suggested, because of the regionality of the sample, that a future study include a national sample of entrepreneurs. Such future research would ideally include a creativity measurement instrument to determine entrepreneurial creativity levels. Empirical relationships between the values held by entrepreneurs and their levels of creativity could then be examined.

Rokeach has experimental evidence indicating that when an inconsistency in one's values are pointed out relative to desired behavior, subjects tend to change their rank ordering of pertinent values. In addition, Rokeach has reported that calling attention to such inconsistencies can also induce behavioral changes.

If values are found to be significantly related to creativity, entrepreneurs, as well as others, may be benefited through knowledge of that relationship. This is expecially true relative to creativity training for entrepreneurs and other managers where such knowledge could be the basis for value change. Rokeach has experimental evidence indicating that when an inconsistency in one's values are pointed out relative to desired behavior, subjects tend to change their rank ordering of pertinent values. In addition, Rokeach has reported that calling attention to such inconsistencies can also induce behavioral changes.

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"VALUES, ORGANIZATIONAL SIZE, AND THE RATIONAL MODEL ACCORDING TO PETERS AND WATERMAN"

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ABSTRACT

In their book In Search of Excellence, Peters and Waterman describe the value-driven orientation of firms they select as excellent. Kleindorfer, Martin, and Brashers develop the conception of value oriented, entrepreneurial management vis a vis the numerative, rule driven, rationalist approach to administration. Related consequences for worker and societal well-being are also outlined.

I. INTRODUCTION

In their popular book In Search of Excellence, Peters and Waterman spend a complete chapter condemning what they call the "rational model" of business decision-making. They describe this model disparagingly as "the numerative, rationalist approach to management that dominates the business schools" (6, p. 29). They go on to say that "it seeks detached analytical justification for all decisions; that it is right enough to be dangerously wrong, and it has arguably led us astray." As exemplars of the set of mind relying on the rational model, P and W single out the quantificationists in statistics and finance and by implication those who look for answers with applied mathematics; that is, the operations researchers and management scientists. P and W even suggest that the business schools in American universities, which have in their view been the major proponents of the rational model, are partly responsible for the failure of American firms to meet the international competition. In later chapters, they set forth their views on how the excellent businesses succeed and also how the laborers in the vineyards of the poorly run businesses suffer. Again by implication from the earlier crucial chapter on the rational model, the conclusion is that the culprit is the goal-setting and rule-driven, top-down approach based on the rational quantified techniques of scientific management.

A second theme that pervades In Search of Excellence is that excellent firms are organizationally decentralized and, thus, capable of flexibility and innovation. In a number of respects, these firms are similar to much smaller businesses. Instead of being held together by elaborate management structures, P and W's excellent firms tended to be integrated around "values." Persons who accept the values of the firm are able to improvise good decisions in unforeseeable circumstances because their decisions are value-realizing, not rule-following. This allows for great flexibility and the possibility of intelligent innovation since the decisions are made by the persons closest to the problem. At the same time, decisions will usually be in harmony with the general policies of the company because they will have been made from the point of view of the values which direct the firm. In this connection, P and W stress that the creative spirit seems to thrive in smaller organizational units. They describe what they call "skunk works" and odd-ball inventors who work frantically out of motel rooms and garages on lost weekends. The value-directed approach, they argue, allows ingenious people, those who ultimately bring home the bacon, to prosper. In this respect, it appears that the small unstructured businesses who "wing it" on informal procedures are, in P and W's view, the models that big businesses should follow. These small businesses do not rely on the rational model that causes rigor mortis in the larger enterprises. This rational model, according to P and W, results in top-heavy hierarchy and loss of spontaneity. Smaller, less rationally organized units encourage individuality and intense inventive productivity, the syndrome that P and W characterize by the saying: "ready, fire, aim."

II. VALUES, RATIONAL METHODS, AND SIZE

The sources and examples that P and W cite show that in their view, the excellent companies base their activities on values that are of an abstract and general character: a belief in superior quality and performance, a belief in the importance of people as individuals, a belief in innovation, a belief in the importance of economic growth and profits, etc. What is interesting here is the way that these values are specified:

> On the other hand, we find among the excellent companies a few common attributes that unify them despite their very different values. First, as our original survey intimated, these values are almost always stated in qualitative, rather than in quantitative, terms. When financial objectives are mentioned, they are almost always ambitious but never precise. Furthermore, financial and strategic objectives are never stated alone. They are always discussed in the context of the other things that the company expects to do well. The idea that profit is a natural by-product of doing something well, not an end in itself, is also almost universal (6, p. 284).

P and W contrast the treatment of values in the excellent firms with what they find to be happening elsewhere.

> The less well performing institutions, on the other hand, were marked by one of two characteristics. Many had no set of coherent beliefs. The others had distinctive and widely discussed objectives, but the only ones that they got animated about were the ones that could be quantified--the financial objectives, such as earnings per share and growth measures. Ironically, the companies that seemed the most focused--those with the most quantified statements of mission, with the most precise financial targets--had done less well financially than those with broader, less precise, more qualitative statements of corporate purpose (6, p. 281).

The poor performance of companies relying solely on explicit and quantitative goals is probably the primary source for P and W's apprehension about the scientific approach to management based on the so-called rational model.

One normally associates the scientific approach to management with large business organizations where economies of scale, intense operational analysis, and employee specialization have been viewed as the key to successful performance. Quantitative and statistical techniques are ways of managing business affairs at a distance: the data and models of the scientific approach form a mediating conceptual structure between the manager and the world he is managing. These techniques are ways of ordering abstractly what, because of its size, the manager may not be able to order by personal contact. The result is a loss of specific information and control which has a critical bearing on the adequacy of decision making (3) (9). On the other hand, the informal value-driven version of management is more associated with smaller business units where personal contact is the normal practice. If P and W are to be taken seriously, then one result of their argument is that small business practice is the proper model for successful efforts in big business; that is, larger businesses will be successful insofar as they decentralize and behave like small businesses.

These ideas are a variant of the thesis of E. F. Schumacher in "Small is Beautiful" (7). But really the idea is of a much older vintage. Aristotle says somewhere in discussing the proper size for a city that it should be no larger than one can shout across. His reason is that if the city is larger than this, then one will not be acquainted with the character of the city's leaders; that is, one will not know intimately what their values are. A knowledge of these values Aristotle takes to be crucial if one is to have an excellent city. Such values are really the points around which competent individual action and interpretation of the world are organized. Without them, rules and technique lose their meaning and become ineffective. This is really P and W's thesis in an ancient guise. But to repeat the argument, an important perspective that we get from P and W is that small businesses are no longer to be seen as the poor second-rate relatives of the larger scientifically sophisticated business enterprises. Furthermore, small business practice may really provide some insight into when and how scientific techniques of management can be successfully used in big business and government.

P and W's empirical findings also have an important bearing on theories about human cognition. They spend a great deal of their book attempting to find a psychological explanation as to why human beings work creatively and successfully in firms that emphasize values, personal contact, and small organizational units. P and W eventually fall back on the so-called theory of bounded rationality which has been proposed by Herbert Simon, a Nobel Prize winner in economics. But Simon characterizes human cognition as a logical and symbolic computational process in which explicit operationalized goals and techniques are central and in which values have no essential role. In Kleindorfer, Martin, and Brashers (1985) (3) we have shown how Simon's theory of cognition fits hand in glove with the organizational theories which P and W reject. Furthermore, in a series of papers (Kleindorfer & Martin, 1982) (2), (Martin & Kleindorfer, forthcoming) (4), we have reviewed the arguments against Simon's position and found it wanting. In its place we have proposed a theory of cognition which includes values as an integral part. In this context, P and W's observations constitute support for our alternative to Simon's cognitive theory.

III. SUCCESSFUL QUANTITATIVE ANALYSIS IN P AND W'S FRAMEWORK

So far, we have been dwelling on the negative side of P and W's views of the so-called rational model which as we see they associate principally with quantified goal-setting and associated rule-governed procedures for attaining these goals. At various places in their exposition, P and W do suggest, however, that scientific analysis of management problems has its place; that it can yield good results when it is suitably used. Thus, it appears that P and W are not denying the efficacy of these procedures but only when and how they are applied.

From what we have already quoted from P and W, the reader can see that P and W deny that the general goals of excellent companies can actually and totally be reduced to operationalized objectives without doing damage. Rather, P and W suggest that quantified objectives when and if they are set must be specified in the context of the superordinate and guiding values that direct the company. Such translations to specific objectives must remain open to constant scrutiny, criticism, and revision in the light of the company's values and the market context. Second, such translations of general goals and values to specific objectives are most effective when introduced as late as possible in the decision process and by those persons who have the best access to the information which ought to constrain the goal-setting. Objectives which are set too far in advance are set in ignorance of the eventual context of action. Third, it must be realized that the attainment of values can never be fully reduced to scientific or technical procedures. Human judgment and common sense can never be deleted from this process without doing injury. Fourth, persons working in firms which are oriented toward similar values as themselves are intrinsically motivated to excellent performance. The neglect of values results in a destructive split between the lives of workers in organizations and their lives in the larger community.

What these prescriptions suggest is that the manager who is using a quantitative technique must realize the provisionality of the quantitative criteria and the objective functions incorporated into such models. For example, it may be found that the results obtained from optimization techniques will have to be discarded on occasion not for something less (satisficing) but rather because these results are not good enough; that is, the model may not in some crucial and unspecifiable way capture the problem or mesh with the values of the organization. Second, it appears that what P and W are suggesting is that scientifically-oriented managers should look for smaller, less grandiose targets of opportunity rather than for totalistic and comprehensive planning systems. Thus, it may be that operational analysis of a humble inventory or scheduling problem will yield results that are in accord with the company's general objectives, whereas a total effort on the scale of Alexander the Great will not fly.

Perhaps the best way to understand this point is by beating horses that are already dead. It would be interesting to obtain P and W's comments on a system like Planning, Programming, Budgeting Systems (PPBS) that was so much heard of as a tool for managing and planning public institutions a few years ago but is not heard much of these days. This system preached complete reduction of intangible goals to operationalized objectives. In the public educational system, considerable turmoil surrounded the attempt to implement it. This is an example of the rational model that not only did not pay its way, but also introduced problems of its own. A joke among some educational administrators and teachers was that PPBS was a fine system except that "it was hard to connect the PP with the BS."

III. SOCIETAL IMPLICATIONS

The emphasis on values as going beyond rationally-oriented techniques raises other interesting points whereby small business practice can be argued to have broader societal implications.

First of all, the importance of values in achieving excellence within an organization raises immediately the problem of values with respect to the business environment as a whole. Critics such as Jacques Ellul (1) have argued that one of the fundamental difficulties of our age is the obsession with technique, with means, rather than ends. As already noted, the obsession with means and technique is destructive to individuals. It is also destructive to community which is defined in terms of values, ethical and otherwise. The way to return economics and business affairs to their proper ethical position with respect to the larger community is to reawaken a concern for ends or values which are not themselves merely techniques for achieving other ends. This is more difficult to do in large goal-oriented and rule-directed organizations.

Socialist criticis of capitalism make the argument that the problem with capitalism is that it ignores the welfare, the values of citizens, and instead emphasizes the pursuit of economic gain for a few. By way of remedy, these socialists propose to organize whole countries along the lines of the rational scientific models that we have been discussing. Again, the assumption is that somehow individual values can be collectively reduced to technical targets. These ideologists make the mistakes of some of our big businesses on an even grander scale. Some of the socialist countries are coming to realize this fact. In this connection, a visiting colleague from a socialist country told us a story:

> A sinner was given the chance to visit hell, and when he got there, he found it divided into a capitalist part, and a socialist part. From the capitalist part he heard intense wailing, and horrible groans. From the socialist side he heard ribald laughter and the sounds of partying. He approached a socialist and asked: "Why is there such a difference between the two sections of hell?" The socialist replied: "Well, in our part the devils went on strike yesterday and last week we ran out of coal."

In large organizations, comprehensively applied rational techniques of management do not work because they ignore the human values and personal contact that are essential for business success. Small businesses can provide an informal milieu more in accord with a concern for values. Small businesses that do so are the best models for business activity.

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F) ENTREPRENEURIAL EDUCATION

ENTREPRENEURSHIP EDUCATION: PATH TO CREATIVITY

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ABSTRACT

The National Center for Research in Vocational Education is providing leadership for infusion of entrepreneurship education in vocational programs nationwide. Such programs encourage creative application of business skills to technical skills already learned in the programs. Because most entrepreneurs have little business training and little time to devote to training once their business in launched, entrepreneurship education is seen as an opportunity to prevent failures as well as encourage business creativity.

INTRODUCTION

Where in the public school system do today's youth learn about the opportunities to start a business sometime in their career? Although there have been a few programs that taught some business components in high schools and 2-year colleges, it was not until the 1980s that a major effort has been started to infuse entrepreneurship education in all types of vocational education programs.

WHAT IS VOCATIONAL EDUCATION?

Vocational education refers to a number of job-training programs in the high schools, 2-year technical and community colleges, and adult education programs in the community. These programs prepare students for careers in everything from auto repair to commercial food preparation to fashion merchandising. Generally these occupations are found in smaller businesses. Students have many chances to study these businesses through on-the-job training. In addition to job skills, they have an excellent opportunity to study the industry in general and to move ahead in their careers in such small businesses.

Many students in vocational education courses have exhibited some of the characteristics of entrepreneurs in their educational choices. In spite of pressure from peers and academic advisors, many young people choose vocational education because they see a personal benefit in this unique type of education. By most standards they are nonconformists who believe in their own abilities to succeed without following the traditional college path to success. They are often students who are tired of traditional learning environments and willing to take a moderate risk for their own benefit. They believe that their success is up to them, and with persistence they can make their own opportunities to get ahead. Many of you may see the similarity of these attitudes to what we know about the personalities of entrepreneurs. For this reason as well as the close connection with small business, vocational educators are moving ahead nationwide to infuse entrepreneurship education in all types of programs in a variety of ways.

What are the benefits of entrepreneurship education?

Entrepreneurship education options have a number of different outcomes for students depending on the time devoted to the topic and the business background students bring to the program. Objectives for a variety of program options may include any of the following:

- Career Planning--Students should understand their opportunities to start a business or become self-employed sometime in their career. Generally most are not ready for this at graduation, but should see how they can move toward this option eventually in their career plans.
- Business Understanding--Whether a person owns a business or is an employee, it is helpful to the operation of this business for the person to understand all the functions of a business. Entrepreneurship education in the public schools will give all students a stronger business base.
- Application of Skills--Entrepreneurship education may serve as a vehicle for students to see ways to become employed with the skills they are acquiring in a vocational program. It provides a method to explore all the ways these job skills may be applied to community business needs.
- Community Understanding--Students may use the entrepreneurship education program to study entrepreneurs in the community, opportunities for new businesses in the area, understanding of the suppliers available, and analysis of the demographics that would contribute to the success of selected small business ventures.
- Self Understanding--Experience with the life story of successful entrepreneurs can be used to help students think about their personal attributes and life-style choices. It is important to look at both the positive and negative factors in a person's make-up before choosing entrepreneurship as a career.

- *Orientation to Change*--Students will learn to look for changes that may lead to business opportunities of the future. Entrepreneurs seem to have a single-minded drive to try the "new" and stay ahead of others.

- *Creativity*--Entrepreneurship education encourages all kinds of innovative thinking related to new products, new services, changes in demographics, new technology, societal change, and community needs. Creating a business on paper that might be started in your community is an excellent exercise in such business creativity.

What do we mean by entrepreneurship education?

The National Center for Research in Vocational Education has attempted to define the lifelong process of preparing oneself to be a successful entrepreneur in a five-stage model. This assumes that stage 1 may start as early as elementary school and that each stage builds on the development of the previous stage. As shown in figure 1, the first three stages are appropriate for educational programs before a person is ready to start a business. The last two stages are for business start-up assistance (4) and business growth management (5) for adults who have actually chosen to be entrepreneurs.

In addition, the National Center for Research in Vocational Education has developed a curriculum product, *PACE* (Program for Acquiring Competence in Entrepreneurship), that defines an entrepreneurship education program as being composed of 18 separate topics. They include--

1. Understanding the Nature of Small Business
2. Determining Your Potential as an Entrepreneur
3. Developing the Business Plan
4. Obtaining Technical Assistance
5. Choosing the Type of Ownership
6. Planning the Marketing Strategy
7. Locating the Business
8. Financing the Business
9. Dealing with Legal Issues
10. Complying with Government Regulations
11. Managing the Business
12. Managing Human Resources
13. Promoting the Business
14. Managing Sales Efforts
15. Keeping the Business Records
16. Managing the Finances
17. Managing Customer Credit and Collections
18. Protecting the Business

PACE is designed in three separate levels to be used for different target groups in the five stage lifelong learning model. For further details on PACE and other entrepreneurship materials contact the Center's Program Information Office at the National Center for Research in Vocational Education, 1960 Kenny Rd., Columbus, Ohio 43210, (614) 486-3655.

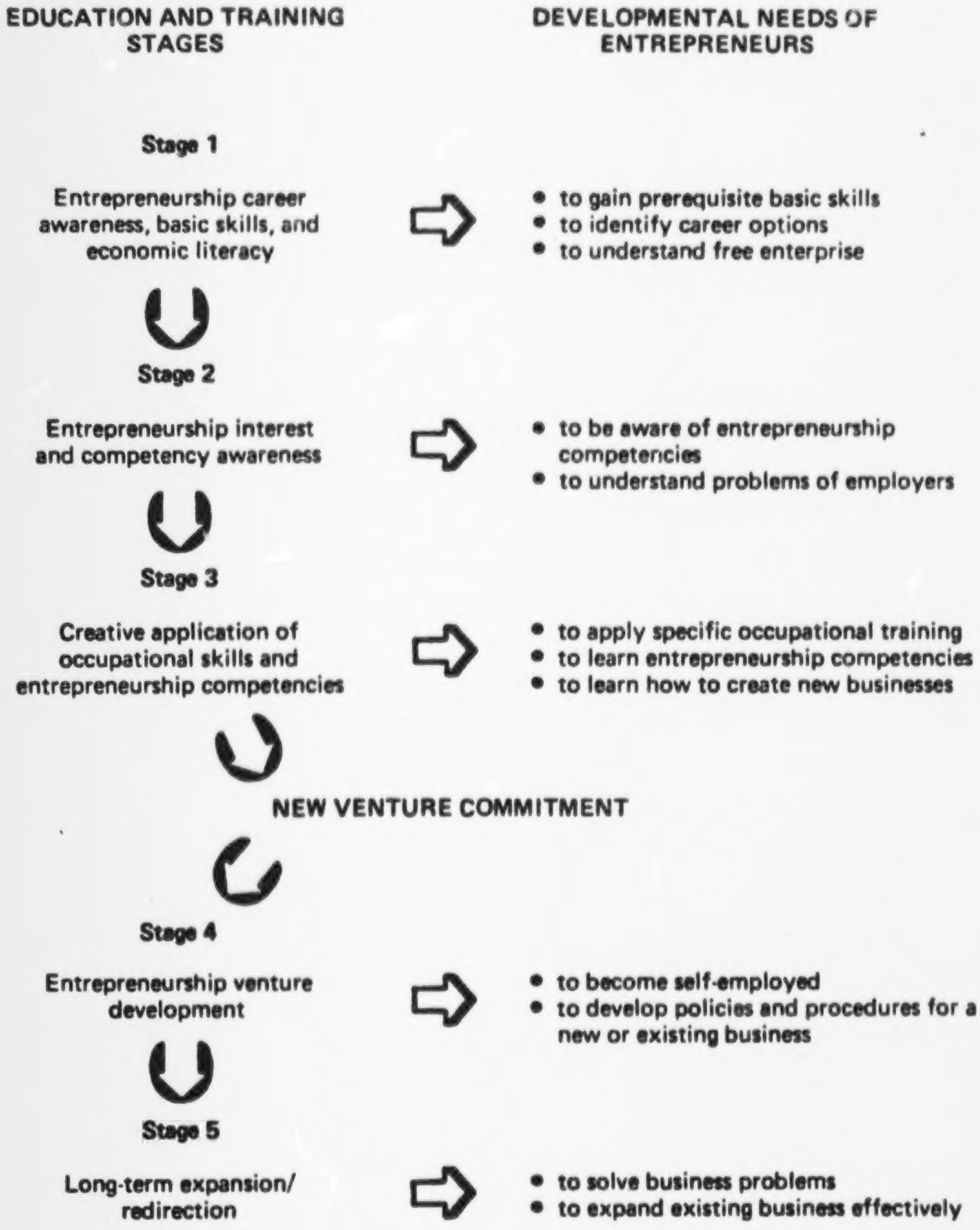
EDUCATION AND TRAINING STAGES
DEVELOPMENTAL NEEDS OF ENTREPRENEURS
Stage 1
Entrepreneurship career awareness, basic skills, and economic literacy
• to gain prerequisite basic skills
• to identify career options
• to understand free enterprise
Stage 2
Entrepreneurship interest and competency awareness
• to be aware of entrepreneurship competencies
• to understand problems of employers
Stage 3
Creative application of occupational skills and entrepreneurship competencies
• to apply specific occupational training
• to learn entrepreneurship competencies
• to learn how to create new businesses
NEW VENTURE COMMITMENT
Stage 4
Entrepreneurship venture development
• to become self-employed
• to develop policies and procedures for a new or existing business
Stage 5
Long-term expansion/ redirection
• to solve business problems
• to expand existing business effectively

Figure 1. A framework for lifelong entrepreneurship education

Why should public education teach entrepreneurship?

There are indications that many entrepreneurs do not have more than a high school education. A study of 1800 entrepreneurs conducted by the National Federation of Independent Business shows that about 40% had only a high school degree or less. Experience with potential business start-ups also tells us that when a person is ready to launch a business, he/she will not take the time to take courses or study business procedures. Pre-college education programs seem the best opportunity for developing transferable business skills and attitudes that will encourage potential entrepreneurs to recognize their opportunities and plan appropriate careers.

We encourage educators everywhere to recognize this need to support "the American dream" as they develop programs to prepare people for work. With entrepreneurship as one focus for their classes they may find innovative opportunities to give students a chance to develop--

- personal characteristics of model entrepreneurs
- technical know-how
- marketable ideas
- contacts in the community
- financial resources
- potential customers
- supportive life-styles
- job experience

The official credo of the American Entrepreneurs Society fits well the concept of an innovative and creative business person--

Entrepreneur's Credo

> I do not choose to be a common man. It is my right to be uncommon--If I can. I seek opportunity--not security. I do not wish to be a kept citizen, humbled and dulled by having the state look after me.
>
> I want to take the calculated risk, to dream and to build, to fail and to succeed.
>
> I refuse to barter incentive for a dole; I prefer the challenges of life to the guaranteed existence; the thrill of fulfillment to the stale calm of Utopia.

I will not trade my freedom for beneficence nor my dignity for a handout. I will never cower before any master nor bend to any threat.

It is my heritage to stand erect, proud and unafraid; to think and act for myself, to enjoy the benefit of my creations and to face the world boldly and say:

This, with God's help, I have done. All this is what it means to be an Entrepreneur."

Official Credo of American Entrepreneurs Society, 1985

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"SCHOOL/SMALL BUSINESS PARTNERSHIPS: THEIR DEVELOPMENT AND THEIR NEED"

LESLIE P. HITCH

THE SMALL BUSINESS FOUNDATION OF AMERICA, INC.

ABSTRACT

With major demographic shifts beginning to affect the labor force, with the quality of public school education continually coming under scrutiny and public ire, the time has come, more than ever, for small business to realize the importance of joining into some form of permanent partnership arrangements with their local schools.

INTRODUCTION

Remember the "gangs" that used to form on your schoolyards? No, not just West Side Story or Hill Street Blues types, but the fights that would spring up when names were called or honor was challenged?

Think about industry and the schools as those gangs. Catcalls, name calling, honor defiled, insults flying.

For the past several years, industry and public education have been playing a dangerous game of gang warfare, with only losers on both sides.

Bullied enough, the two gangs are finally meeting, proverbially, after school in the schoolyard.

But, instead of head to head combat, the two have found they can more easily be friends than enemies.

The password, common to both, is jobs -- industry needs to fill them, education needs to prepare students for them.

To digress for a moment,I am not talking about technical and/or vocational education. Industry is not interested in single-sided, individualized, robotized, so to speak, humans to be spewn from the classroom. No, what is happening, albeit slowly, is that the two former warring factions have discovered the common ground on which to not only call a truce, but also to begin working to the greater good.

DEMOGRAHPIC SHIFTS

Today we are faced with two massive demographic shifts that will severly affect how and under what circumstances we as a nation can remain competitive. The first change is the declining birthrate. The second is the aging of the population.

The spirit of entrepreneurship will have to be fostered and developed in each of these categories, but, for the purpose of this excercise, I will address the new generation of workers.

Industry and schools have met in the schoolyard, have disentangled the battle lines and are now working toward better training, better understanding. But who is that industry? For the most part, it is big business. Big business has the monetary and human resources to direct toward educational partnerships.

And, while there is no disparagement of big business either implied or suggested, the fact remains that big business, by its definition, does not remain entrepreneurial beyond its founding days. Some might argue for the movement toward intrapreneurship, but, on balance, entrepreneurship has been the function of entrepreneurs.

Entrepreneurs and small business people often do not have either the time or the money to engage actively in school/business partnerships. Yet, the time is approaching when the need to become more active may outweigh time and monetary considerations.

If larger businesses join with the schools, that declining population of youth may never be exposed to, or be sidetracked from, the importance of maintaining this country's entrepreneurial spirit.

The youth, also, at their impressionable age, may become inclined to believe in the larger businesses that have been of assistance to them.

How, then, do small businesses reconcile the critical issues of time and money with the growing need to join with larger businesses in establishing a partnership arrangement that will produce a well-rounded, thinking, trained and adaptable workforce?

TWO CASE HISTORIES

Burlington, Massachusetts

In some circles, it can be argued that John C. Rennie is a form of Renaissance man. In most small business circles, there is little argument that he is the quintessenal small business person. The unique aspect to Jack is that he not only concocts ideas, he follows through on them.

A former Navy test pilot and astronaut candidate, Rennie runs a highly successful aviation equipment firm from Burlington, Massachusetts.

Burlington, once a sleepy suburb of Boston, is now one of Route 128's Wundercommunities. In three years, the growth of that town has almost choked it as building after building and existing office space has been taken over by high growth technology firms of all descriptions.

One day, in converstation with then Massachusetts Senator Paul Tsongas, Rennie and the Senator spoke of the importance of establishing long-term relationships of high tech companies with the schools in their communities.

As is Rennie's way, the idea did not stop with that conversation.

Upon return to Boston, Rennie immediately began the process to establish a pilot program in Burlington. After a series of meetings with dubious school officials and the local chamber of commerce, BEST BET was born.

The focus of the program (Build Excellent Schools Through Business and Education Teamwork) is to leave educational decisions to the educators but to cover a very broad range of issues. The emphasis is not just on business. Of equal importance is that the students learn to write, speak and receive a complete education.

Rennie's philosophy is that businesses do not benefit directly from having students trained solely in one field. Well-rounded students are a benefit to any future employer.

To implement the program, which has presented the Burlington schools with $25,000 alone last year, a steering committee of industry and school designees was estabalished. The committee screens proposals that may or may not have a monetary component.

The primary benefactor has been at the middle school level where programs in color video projection, English-teacher workshops, purchase of a bioscope and on-site visits to area businesses and museums have been arranged by the program.

Specifically, the objects, again with the catalyst from Rennie and the head of the school system are:

For students:

Increase interest in school/subjects
Improve educational content
Improve relations with teachers
Educate on career options
Educate on needs of industry in general
Promote teaching as a career choice
Educate on business as a vocation
Increase opportunities for compensation

For teachers:

Improve status/self image
Increase opportunity for compensation
Improve currency in their profession
Provide support for class topics

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And, in general to:

Improve facilities and equipment
Make better use of excess space
Improve morale
Develop better ties between schools and industry

To date, over 15 other Burlington businesses have become involved. However, the primary mover still remains Rennie. The importance of a major force in a community as a catalyst cannot be underplayed. Whether large industry or small, it is often the vision and commitment of one key person that makes and keeps the program growing.

And, despite the rewards to both the academic community and to industry, this type of partnership results in the ultimate winners being the students.

The students see that people, big people, care, and they respond.

This spirit goes beyond even entrepreneurial spirit. It infuses the next generation with hope, with concrete ideas and tools, and this will keep America's competitive nature alive.

Springfield, Massachusetts

Located slightly beyond the midpoint of Massachusetts is the city of Springfield. Forgotten and neglected by both the state and by its own citizenry for a long time, Springfield is a long way from the glamour and pizzaz of Burlington and Route 128. Its demographics have been more resemblant of other decaying United States industrial communities.

In the past few years, however, as a result of coordinated efforts between the active School Volunteers for Springfield and some of the major corporations such as Friendly Ice Cream and the Milton Bradley Company, a union has been forged to improve the Springfield schools.

Out of that union has come a unique program driven by a young, red-headed entrepreneur named Larry Derose.

Larry's company is in lasers. Specifically, lasers used to weld segments of the space shuttle together.

Larry's wife had been involved in the school volunteer program and one day the idea arose to bring an astronaut to Springfield. Upon presentation of the idea to Larry and the request to have him cut through some of the red tape to bring the astronaut in, Larry met the challenge and antied up the school volunteers one better.

The anti was to establish a high tech expo. This was not to be a science fair nor a career day for high technology, but rather a hands-on demonstration-oriented, touching and feeling expo where students could see, in action, several of the new technologies that otherwise simply would have been words on a page.

Again, the idea did not stop on the drawing table -- Larry took it through to its completion.

His motivation was as entrepreneurial as is his philosophy and his company.

He saw in today's students a major gap between what was taught as technology in the classroom and what was truly going on in the students' lives.

He saw this magnified 100 fold in the teachers' awareness level.

He saw teachers fearing to introduce new concepts because they thought the students were not yet ready to learn these concepts. In effect, he will tell you, the teachers were themselves unaware as to how to introduce the new technologies.

Derose contends and has proven that the laser concept can easily be presented to nine or 10 year olds who are non-scientifically oriented.

And, thus the tech Expo was developed. It has a multiplicity of rewards as a result:

--it aids in career choices and options
--it exposes all teachers and students in a hands-on fashion to the new technologies, thus reducing fear and enhancing learning
--it exposes the average student to the many applications of the technology. It shows them they don't have to be designers to be involved in new technologies
--it shows, clearly, to industry, what its own role is in the information transfer process

Larry Derose is not out to perform educational miracles with the system. Unlike Rennie, he operates the Expo program by himself as an advisor to the school volunteers. It costs nothing but his time.

And, that time has already been paid back in the form of a positive entrepreneurial learning environment. This year, at his urging and with some prodding by students, the students will actually perform limited, controlled laser welding at the high tech Expo -- kids who otherwise might never have been exposed to this technology for several more years.

One student, after seeing the Expo in its first year two years ago, called DeRose and asked if he, the student, could build his own laser.

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Derose gave him a corner of the workroom floor, catalogs and the willing ear of one of the engineers. And while the student ultimately was unsuccessful in building his own laser, there is no question in Larry's mind, in the student's mind, or from anyone who hears the story that the entrepreneurial spirit has been promoted in the most positive of all learning environments -- the fact that a businessperson both cared and then shared.

G) WE DID IT - SO CAN YOU

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ABSTRACT

Most business begins as small business and, if a venture is successful, the organization begins to grow. To perpetuate the original vitality of the business becomes a challenge. This challenge can be met by fostering in the workplace a spirit of innovation and freedom in a climate that respects the dignity and worth of individuals.

On the surface we may wonder what common ground there may be between a small entrepreneurial company and a large organization like 3M. Let me suggest three:

1. We were once a struggling new business, so we can understand the plight of a small company.
2. The entrepreneurial spirit that gave birth to 3M continued to sustain its growth through good and troublesome times.
3. Managing the value of entrepreneurship will be the key to the future success of both small and large companies.

On July 15, 1902, the Two Harbors, Minnesota Weekly Newspaper, The Iron News, reported the founding of a company to mine what was believed to be a valuable abrasive mineral, corundum. Its founders, all citizens of the north shore of Lake Superior, included a doctor, a lawyer, a merchant and two railroad executives.

They believed that they were the owners of a raw material of industrial value which they had only to exploit with wisdom and vigor to reap a significant reward. Each purchased 1,000 shares of the $500,000 capital stock at $1.00 a share. Does that sound familiar?

Unfortunately, that material asset on which they had built their hopes turned out to be a liability, unsuitable as an abrasive mineral. Their true assets, which did survive, were the qualities of courage and insight which has served America so well throughout its history.

These early years of struggle were only the forerunner of many periods of testing. Financial problems, quality problems and, of course, unrealized sales forecasts combined to plague them. It took 10 years for the struggling firm to achieve a measure of success as a sandpaper manufacturer. It was 14 years before the initial investors reaped their first dividend - six cents a share in 1916.

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As the company grew it gained a reputation for developing unique, new products. The first being a waterproof sandpaper. Then in 1925 Dick Drew, a laboratory assistant, was testing sandpaper in an auto repair shop. He recognized the need for a tape to mask paint for two-tone cars. Thus was born the first of many Scotch brand tapes. This experience led to the formation of the technical service department of the laboratory that keeps in close touch with customers in an attempt to discover unsolved needs. They then worked with 3M chemists and engineers to develop products to solve these problems.

New ideas were rapidly generated by young, aggressive individuals, but not every suggestion received the full support of those who had to manage the limited resources of a young growth company. These rebuffs required ingenuity and creative alternatives to find ways to "bootleg" the projects.

One example was a young lab worker experimenting with tiny glass beads, more a novelty than a product. He was told to get back to his regular work, and he did. But fortunately, he returned to his bead project after normal working hours. Many nights he burned the midnight oil.

Today those tiny beads are on reflective road and bridge safety signs all over the world. Just a few years ago, he and his wife attended an Academy Awards ceremony where he received an Academy Award for a bead-based, front screen projection system for moviemakers.

Years ago, there was another lab man on our payroll who was fired, but still kept coming into the lab to work on his pet project. With the persistence of his efforts - and his rehiring - the project finally became a division and the persistent employee ultimately retired as the vice president of that very successful operation.

Fortunately, these examples, though important to remember, are in the minority. Many innovative ideas had the full support of management, and have become important products for industry and the consumer.

In every case, however, there has been a champion who has believed in an idea and was willing to do whatever necessary to make it happen. They were truly entrepreneurs, even though today they are often referred to as "intrapreneurs."

Entrepreneurship, in my definition, is a spirit - a quality - that believes so strongly in an idea that it risks the security of the present for the reward of the future.

Entrepreneurs may be most visible in small companies, but they are a vital part of any strong growth company. Can any of us, large or small, dare to become complacent and lose the spirit that gave birth to our companies and helped to overcome the struggles of our early growth?

Obviously there are differences in the needs of large companies and small businesses. Large businesses have greater internal resources. But we still have to go to the corporate "bank" for capital expenditures and research funds. Unlike the commercial bank, which can only refuse the loan, corporate management may choose to fire you if they lose confidence in your proposal.

As your companies grow in size, you will naturally become more organized and like others, perhaps more rigid. You will find it necessary for more approvals and reviews to control expenditures. Decision makers may be faced with greater short range pressures and become less apt to buy into new ideas without assurance of high potential return.

3M has an interesting policy that encourages its research employees to spend up to 15 percent of their time on ideas not pertaining directly to their assignments. Eventually they will be judged on how they spend this time, and on what benefits result, but at least the opportunity is provided and many good things happen.

There are conflicts that arise between departments as a company grows. When I was a technical director, I recall a conflict I had with the Marketing Department. They wanted to concentrate our limited resources on the improvement and promotion of established products. But I believed the future of the division was dependent on the development of new products and new technologies. Eventually, this was resolved. But I risked losing my job in the process.

The future of successful companies, small or large, will depend to a great extent on the decisions and policies of top management. In Search of Excellence answers the question, "How do good companies become the way they are?"

Peters and Waterman state in their findings:

"It is always a case of a strong leader at the helm. Associated with almost every excellent company was a strong leader."

Furthermore: "The real role of the chief executive officer is to manage the values of the organization."

What are the key values that must be managed by the C.E.O. in order for a company to maintain excellence and grow profitably? There are, no doubt, many such values, but I would like to mention a few that I personally have seen managed effectively.

In our corporate goals and objectives, we state that the first principle of management is -

> "The promotion of entrepreneurship, and insistence upon freedom in the workplace to pursue innovative ideas. Policies and organizational structure are to be flexible and characterized by mutual trust and cooperation."

That statement contains a lot of words. But if it is truly managed effectively it will create a climate that will encourage the release of energy and ideas to provide the needed seeds for future growth.

Another principle is the value we place on the individual. We state that -

> "It is essential to provide an organizational structure and work climate which respect the dignity and worth of individuals, encourage initiative, challenge individual capacities, provide equal opportunity for development and equitably reward effort and contribution."

Rene McPherson, former Chairman of the Dana Corporation, is quoted as saying:

> "Almost everyone agrees 'People are our most important asset' - yet almost none live it. The excellent companies live their commitment to people."

At 3M we have published a set of Human Resource Principles and our Chairman, Lew Lehr, has gone on record that -

> "These are words that all of us should live by. Place our Human Resource Principles in all 3M locations, not in the manager's office, but where the people can see them. We must be held accountable to our employees."

But you may say that this is what a small business is all about. You fought and survived the early struggles. You value the team that supported your efforts.

This may be true, but my question is, will it be true as you grow?

Will it be true when you have to delegate authority to new members of your organization? Will it be true as you move further away from the scene of action? Will it be true as your organization grows to the point where you no longer are personally aware of each person's need?

Will the climate in your company still encourage freedom in the workplace to pursue innovative ideas?

Mr. McKnight, one of our early pioneers and chief executive officers, once told his 3M colleagues -

> "As our business grows it becomes increasingly necessary to delegate authority and responsibility, and to encourage men and women to exercise their initiative. This requires considerable tolerance. Those to whom we delegate authority and responsibility, if they are good people, are going to want to do their jobs in their own way. These are charactertistics we want and people should be encouraged as long as their way conforms to our general pattern of operations."
>
> "Mistakes will be made," he said, "but if a person is essentially right, the mistakes he or she makes are not as serious in the long run as the mistakes management will make if it is dictatorial and undertakes to tell those under its authority exactly how they must do their jobs."

Another principle to which we should adhere is uncompromising honesty and integrity. This is manifested in the commitment to the highest standards of ethics throughout the organization and in all aspects of our operations. This should include the objective of selling products and services of high quality and reliability that are genuinely useful to customers and consumers.

I like the statements that Larry Wilson, of Wilson Learning Center, makes on the purpose of selling:

> "The purpose of a business is not to make sales or profits.
>
> "The purpose of the business is to satisfy the needs of the customer.

"If we provide quality products and services that solve customer problems, sales and profits will result.

"Sales and profits are the outcome, not the purpose."

Real estate agents tell us that the most important factors in buying property are location, location, location. I believe the three most important foundation stones in any business are quality, quality, quality.

Phil Crosby in his book Quality is Free states the following three keys to quality:

- Doing the right things in the right way.

- Doing it right the first time.

- Zero defects.

How, you may say, can we achieve zero defects? The principle, I believe, is that zero defects must be the goal and nothing less is satisfactory. We must believe that, and strive for it, if we are to come even close to reaching it.

"As we think in our hearts, so are we."

Finally, organizational structure is the mechanism by which companies can accomplish their stated goals. Structure in a small company is simple, but it becomes more complex as we grow -

"In excellent companies, small, in almost every case, is beautiful," according to Peters and Waterman, - "it is efficient, motivated and productive."

But how will you be able to stay small and still grow large? How does a large organization like 3M, with 87,000 employees, maintain the benefits of a small company?

I was asked that question some time ago by Fred Kline, a staff reporter for the Wall Street Journal. In an article he wrote entitled "Some firms fight ills of bigness by keeping employee units small," I was quoted as saying -

"We are keenly aware of the disadvantages of large size. We make a conscious effort to keep our units as small as possible because we think it helps keep them flexible and vital. When one gets too large we break it apart. We like to say that our success of recent years amounts to multiplication by division."

But this is not a new corporate philosophy. Mr. McKnight, in the late 1940s, recognized this need. At that time, we changed from a tightly controlled structure to a vertical organization in which the general manager was given full authority and responsibility for research and developement, manufacturing and sales. However, the core values, including sound financial policies, quality engineering and equitable human resources policies were maintained on the corporate level.

Today there are more that 40 divisions, and in addition many independent projects and departments that will eventually achieve division status.

Let me again stress that I believe the major role of the chief executive officer (that is, many of you in this room) is to manage the values of the organization.

First, these values must be determined. The ones we have considered are again:

1. The promotion of entrepreneurship and freedom in the workplace.

2. A work climate which respects the dignity and worth of individuals.

3. The commitment to uncompromising honesty and integrity, both in the workplace and in the community.

4. An organization structure that maintains autonomy, flexibility and vitality through delegation of responsibility and authority.

Values that you believe are important to the success of your company, which you would be committed to manage, should be made a written record, so they are not merely assumed and taken for granted.

Finally, they should be communicated to each segment of the organization, as well as to customers, suppliers, stockholders and the general community. They will then become the basic principles of operation, and you will become open to the evaluation and judgement of those you serve.

We have talked about "roots of entrepreneurship." It is a mistake to believe that the spirit of entrepreneurship is only necessary during the formation and early growth stage of a company. These roots, as in any living plant, are necessary throughout its life cycle. In fact, they are even more important as the size of an organization grows, in order to sustain the increasing super structure. Entrepreneurship is a basic ingredient for success from beginning to end.

To each of you, let me wish you every success and personal satisfaction as you travel through the joys and frustrations of business growth.

Good entrepreneuring!

H) WARNING SIGNALS FOR ENTREPRENEURS

"WARNING SIGNALS"

BRIAN R. FORD

ARTHUR YOUNG

I. Gross Margin Squeeze

The first step on the way to profit

II. Cash Crunch

Good cash management practices are a must

III. Inventory Dilemma

The juggling act of how much to keep on hand

IV. Score

Ratio analysis is important

V. People Problems

A growing company must attract and retain a good management team

Brian R. Ford is a partner in Arthur Young's Philadelphia Office and in charge of their Entrepreneurial Services Group.

GROSS MARGIN SQUEEZE

Gross Margin — A Key Indicator

Warning Signal: Erosion of Gross Margin

Stopping the Slide

Ideas for My Company

How Arthur Young Can Help

- Cost Accounting Systems
- Productivity Improvement Studies
- Manufacturing Control Systems
- AY Fastplan Financial Model

Questions

CASH CRUNCH

Cash — Vital to Any Business

Warning Signal: Work Shipped or Performed and Unbilled

Warning Signal: Aging Receivables

Managing the Cash

Ideas for My Company

How Arthur Young Can Help

- Policy Reviews
- Systems Reviews
- Cash Management
- Billing
- Collections

Questions

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INVENTORY DILEMMA

Inventory Management — A Major Juggling Act

Warning Signal: Sales Order Deterioration

Warning Signal: Backorder Escalation

Warning Signal: Inventory Turnover Slows

Inventory Management Considerations

Ideas for My Company

How Arthur Young Can Help

- Inventory Management
- Order Entry Systems
- Accounting System Reviews
- Forecasting
- Economic Order Quantity Systems

Questions

Z SCORE

Z Score — A Bankruptcy Predictor

Public Company

$Z = 1.2X_2 + 1.4X_2 + 3.3X_3 + 0.6X_4 + 1.0X_5;$
Z = overall index of corporate health;
X_1 = working capital divided by total assets;
X_2 = retained earnings divided by total assets;
X_3 = earnings before interests and taxes divided by total assets;
X_4 = market value of equity divided by book value of total liabilities;
X_5 = sales divided by total assets.

Private Company

If no market value of equity can be determined use Net Worth (book value) divided by total liabilities. The formula becomes:

$$Z = .717X_1 + 0.874X_2 + 3.107X_3 + 0.420X_4 + 0.998X_5$$

Warning Signal: Low Z Score

Public Company

$Z < 1.81$	Going Bankrupt
$Z > .299$	Healthy
$1.81 < Z < 2.99$	Grey Area

Private Company

$Z < 1.23$	Going Bankrupt
$Z > 2.90$	Healthy
$1.23 < Z < 2.90$	Grey Area

Managing Based on Z Score Results

Ideas for My Company

How Arthur Young Can Help

Financial/Business Planning
Ratio Analyses
Assistance w/Financing
Accounting Systems Reviews

Questions

PEOPLE PROBLEMS

The People Element

Warning Signal: Personnel Turnover

Building Your Management Team

Ideas for My Company

How Arthur Young Can Help

Organization Review	Attitudinal Studies
Compensation Planning	Team Building Seminars
Recruitment Assistance	

Questions

I) HOW TO STIMULATE HIGH TECHNOLOGY INNOVATIONS

"INNOVATION THROUGH INVESTMENT IN PEOPLE: THE CONSIDERATION OF CREATIVE STYLES"

ROBERT ROSENFELD

RESEARCH LABORATORIES, EASTMAN KODAK COMPANY,
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ABSTRACT

This paper describes a pilot study conducted within the Photographic Divisions of Kodak Research Laboratories in 1982. In the past few years, there has been a resurgence of interest in innovation. Most attempts to stimulate industrial innovation have centered around the use of idea generation techniques and training for management. The purpose of this study was to lend some support for a different approach to innovation, one which invests in people rather than in idea generation.

To this end, the "creative" styles of individuals who had submitted idea memorandums (IM's)[1] to the Photographic Divisions' Office of Innovation[2] (PDOI) were examined. Rather than measuring the "degree of creativity" of an individual, "creative style" refers to the manner in which a person interacts with his/her environment when solving problems (i.e., how his/her creativity is expressed). Styles were measured by use of the Kirton Adaption-Innovation Inventory (3) which places people on a scale ranging from "originally creative" to "adaptively creative". The "creative styles" of four groups were examined: (1) professionals submitting IM's, (2) technicians submitting IM's, (3) management submitting IM's, and (4) management NOT submitting IM's. As this was a limited study, not all possible groups were included (i.e., professionals and technicians NOT submitting IM's).

The data indicated that the creative styles of all IM submitters were similar irrespective of their role within the organization. However, the styles of those managers not submitting IM's was found to be more "adaptively creative" than those professionals who submitted IM's. The difference between IM submitters and non-submitting management was even more pronounced when considering those individuals who had submitted three or more IM's. If we learn more about those individuals with originally creative styles and become skilled in spotting them, we might better harness their abilities. In order to harness the potential of creative individuals, a vehicle should be created by which:

1. Ideas from creative individuals can be bubbled up for management attention,

2. management can elicit ideas from creative individuals,

---

[1] IM = A written submission of an idea. An IM may be a revolutionary or evolutionary idea submitted to the Office of Innovation because it is outside the submitter's assigned work.

[2] For more information of PDOI's system and the role of the facilitator, "Idea Evaluation in a Large Industrial Organization: The Photographic Divisions' Office on Innovation", Robert Rosenfeld Creativity Week IV proceedings, Center for Creative Leadership, Greensboro, North Carolina, 1981.

3. one invests in people, not just ideas, and

4. acceptance of diversity of creative styles is enhanced.

Utilizing the creative styles of individuals working in a high technology environment to complement their more adaptively creative management and peers may make the difference between future success or failure in a rapidly changing world.

INTRODUCTION

> "The formation of a problem is often more important than its solution, which may be merely a matter of mathematical or experimental skill. To raise new questions, new possibilities, to regard old problems from a new angle, requires imagination and marks real advance in science."
> (Einstein and Infeld, 1938)

Progressive companies are generally interested in increasing the number of "good" ideas coming from their staff. This has traditionally been done by training individuals in idea generation methods, rather than in providing direct support for those individuals who have demonstrated a capability of generating ideas. The assumption has been that with an increase in the number of ideas generated, a concomitant increase in "good" ideas, would result. Thus, companies have placed their emphasis on idea generation and problem solving sessions have most frequently been conducted with managers and those professionals who interface well with management. This is a natural tendency, as people tend to affiliate with those individuals who are similar to themselves in outlook and orientation. However, this may not be the best approach. An alternative might be to target those individuals who are creative and nurture their development. Instruments such as the Kirton Inventory may offer assistance in this endeavor.

The Kirton Adaption-Innovation Inventory (KAI) (3) was designed to measure a person's creative style (see Appendix A). The instrument does not measure intellect or the creative capacity of an individual, but one's creative style. Creative capacity and potential are most commonly measured in terms of one's past performance. "Creative style" on the other hand, is defined as the manner in which a person interacts with his/her environment when solving problems. Kirton's model for creative style places people on a continuum between "adaptively" and "originally" creative.

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Adaptively creative people[1] "operate cognitively within the confines of the pattern in which a problem is initially perceived. Their creativity is less likely to challenge existing frameworks" (Gryskiewicz, 1982) (1). By contrast, originally creative people approach problems in a different fashion. These individuals are "more likely to treat patterns as part of the problem. The problem is redefined and results in a creativity style that goes outside of the original problem definition" (Gryskiewicz, 1982) (1). A fuller description of these two styles are found in Appendix B. These two styles are visually illustrated in Figure 1. The box symbolizes an original problem or the confines of a company. An originally creative individual is predisposed to look for solutions to problems or new directions for his company predominantly outside the confines of the box, whereas an adaptively creative individual will generally create within the confines of the box. Both individuals are creative. The inventory describes one's predisposition to a style of problem solving.

In other studies and workshops (Kirton, 1981) (2) conducted by Kirton, people have discussed the implications of their style in the workplace. For example, individuals with scores high on the original end of the continuum expressed the following views. The felt that:

1. they didn't fit in,
2. they had their own personal agenda which may not appear relevant to the organization,
3. they had a low tolerance for adaptors,
4. it was hard to get positive recognition in big organizations,
5. ideas were stolen by bosses,
6. they needed a translator so others could understand them,
7. they hated to write,
8. they found it hard to get along with people above, and

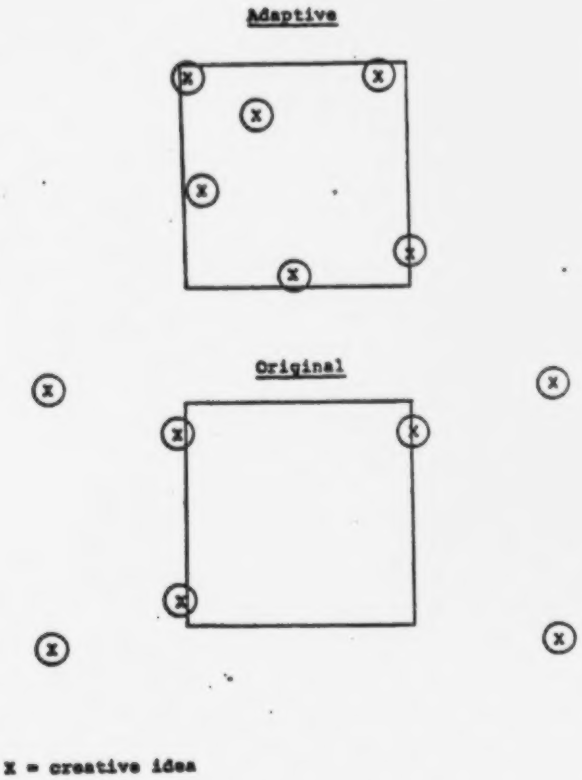
---

[1] These phrases ("adaptively creative" and "originally creative") are different from those used by Kirton and Gryskiewicz (Adaptive/ Innovative). I chose to use these terms as they reflect the values which Gryskiewicz, Kirton, and I consider both styles possess. The adaptively creative individual is creative within the confines of a problem as stated. The originally creative individual goes beyond the limits imposed by the problem statement. Both are creative but differ in scope. The phrases appear to me to be less judgmental than those originally used.

9. they lost interest in working on a project once the end is seen.

FIGURE 1

Creative Styles



Kirton also examined the view of adaptively creative individuals towards the originally creative individuals and the reverse. Adaptors perceived originators as being neurotic, extraverted, extrapunitive, and inner-directed, whereas originators perceived adaptors as being stodgy, timid or compliant (Kirton, 1977) (3). Both the originally creative and the adaptively creative individuals serve important functions. It would be wrong to assume that only originally creative individuals should be valued. Both groups have specific and necessary functions in large corporations.

The hypothesis underlying the following pilot study was that those individuals who submit idea memorandums (IM's) to the Photographic Divisions' Office of Innovation would have an originally creative style, as measured by the Kirton inventory. It was also hypothesized that the styles of submitters and their management would differ, with management being more adaptive, given the nature of their role within organizations. We decided to examine the validity of these hypotheses.

Method

Letters were sent to all individuals (professionals, technicians, and managers) who had submitted IM's prior to and including 1981. Accompanying the letter was a copy of the Kirton Inventory and a request that individuals complete the inventory and return it to the Office of Innovations. In exchange for completing the inventory, their scores were returned to them with a complete explanation. For purposes of this study managers were defined as individuals who supervised five or more professionals within the selected Divisions. Also included were managers who had not submitted IM's. Four groups were thus included: (1) professionals submitting IM's and (2) technicians submitting IM's, (3) management submitting IM's, and (4) management not submitting IM's. As this was a limited study, not all possible groups were included (i.e., professionals and technicians not submitting IM's were excluded).

Instrument

The Kirton Adaption-Innovation Inventory (or KAI) was developed by Michael Kirton (1976). It contains 33 items which were derived from observations and intensive interviews with managers, as well as a relevant literature review on creativity. The respondents use a four-point rating scale to indicate how easy or difficult they would find it to present themselves in this manner for prolonged periods of time. Numerous studies (Kirton, 1976) (4) have been conducted with large, heterogeneous samples yielding a test-retest reliability coefficient of 0.88.

In scoring the KAI, values may vary between 64/O and 64/A (see Figure 2). Individuals with originally creative styles score in the 'O' part of the continuum, whereas those with an adaptively creative style score in the 'A' range. For an originally creative style, the highest possible score was 64/O, whereas the highest possible score for an adaptively creative style was 64/A.

RESULTS

Table 1 indicates the population size and corresponding return rates of individuals on the Kirton Inventory by company position and IM submission rate. Eighty-two percent of those individuals submitting IM's responded to the Kirton Inventory, as did over ninety percent of those individuals submitting three or more IM's. It should be noted that there was great variability in population size. For example, the population of managers not submitting IM's contained 34 individuals, whereas the population of managers submitting IM's contained only 8. The subset of managers submitting three or more IM's contained two individuals. As would be expected, there was a larger group of professionals (111) and technicians (18) submitting IM's.

FIGURE 2

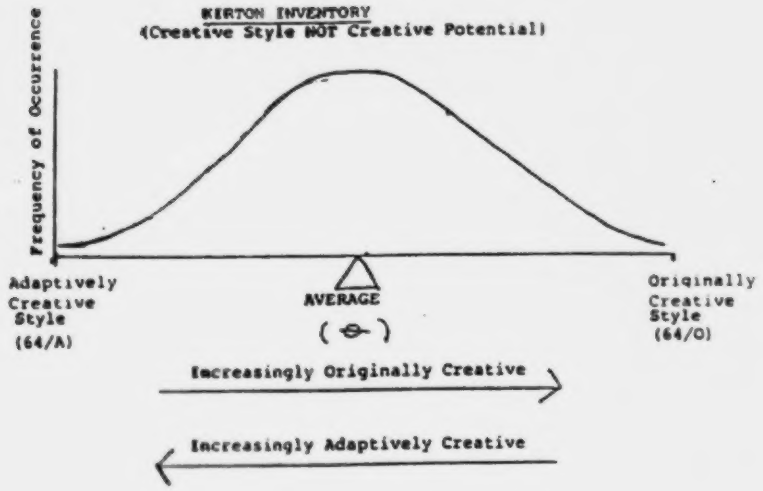


TABLE 1

Kirton Inventory: Population Sampled and Return Rates by Position and IM Submission Rate

		← Total Group of IM Submitters →			
	Management NOT Submitting IMs	Management Submitting IMs	Professionals	Technicians	Total
Population Size	34	8	111	18	137
Return Rate	56%	100%	80%	83%	82%
		← Individuals Submitting 3 or more IMs → (subset of Total Group)			
Population Size		2	15	3	20
Return Rate		100%	87%	100%	90%

Table II contains summary data classified by position and IM submission rate. The numbers in the table indicate raw scores on the Kirton Inventory. A quick glance at this table indicates that:

(1) The mean score of managers and professionals submitting IM's was quite comparable (18/0 for managers and 19/0 for professionals).

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TABLE 2

Kirton Inventory: Summary Data by Company Position and IM Submission Rate

		← Total Group of IM Submitters →			
Score	**Management NOT Submitting IMs**	**Management Submitting IMs**	**Professionals**	**Technicians**	**Total**
Range	19/A*-52/O**	8/O-36/O	18/A-48/O	33/A-39/O	33/A-48/O
Mean	7/O	18/O	19/O	9/O	17/O
Median	7/O	17/O	19/O	10/O	18/O
Standard Deviation	±17	±11	±15	±18	±16
		← Individuals Submitting 3 or More IMs → (Subset of Total Group)			
Range		19/O-36/O	11/A-48/O	11/O-39/O	11/A-48/O
Mean		28/O	28/O	26/O	28/O
Median		28/O	30/O	29/O	29/O
Standard Deviation		±12	±15	±14	±14

*A = Adaptor
**O = Originator

(2) The mean score for managers not submitting IM's was more adaptive, as indicated by score of 7/O.

(3) The mean score for technicians submitting IM's was also more adaptive (9/O).

These data are represented graphically in Figure 3. As would be expected in a research lab environment the distribution was skewed to the originally creative side of the Kirton continuum with a mean score of 17/O and a standard deviation of ±16.

Testing the assumption that individuals who submit a large number of IM's were more originally creative in style than their direct management, the data on individuals who had submitted three or more IM's were examined. Managers and professionals submitting three or more IM's both had a score of 28/O. Technicians submitting three or more IM's had a mean score of 26/O. Graphic representation of these data is shown in Figure 4. The mean Kirton scores for managers not submitting IM's was 7/O (see Figure 5). This was significantly more adaptive than the mean scores of the total group of individuals submitting IM's. Illustrated by Figure 6 is a comparison of individuals submitting three or more IM's and managers not submitting IM's.

DISCUSSION AND CONCLUSIONS

The use of the Kirton Inventory indicates that the styles of those individuals submitting IM's, both managers and professionals, were quite comparable. This implies that individuals with

FIGURE 3

Kirton Scores of IM Submitters by Position

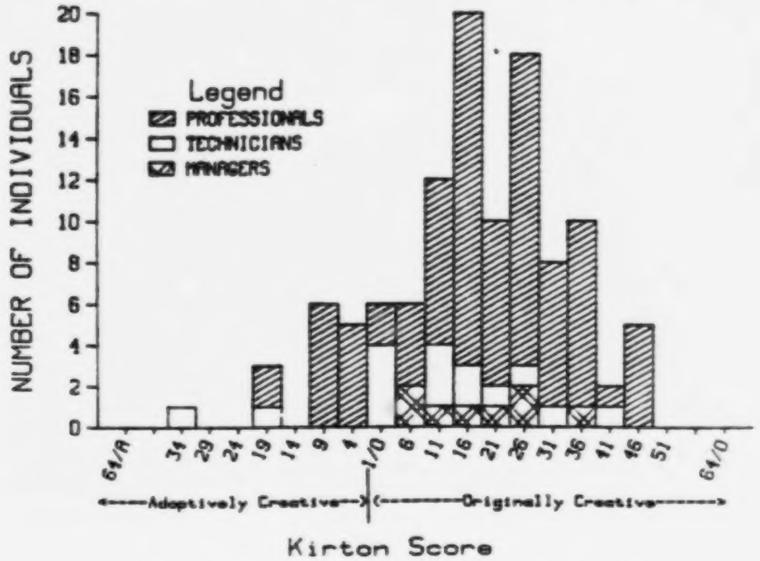

FIGURE 4

Kirton Scores of Individuals Submitting 3 or more IM's

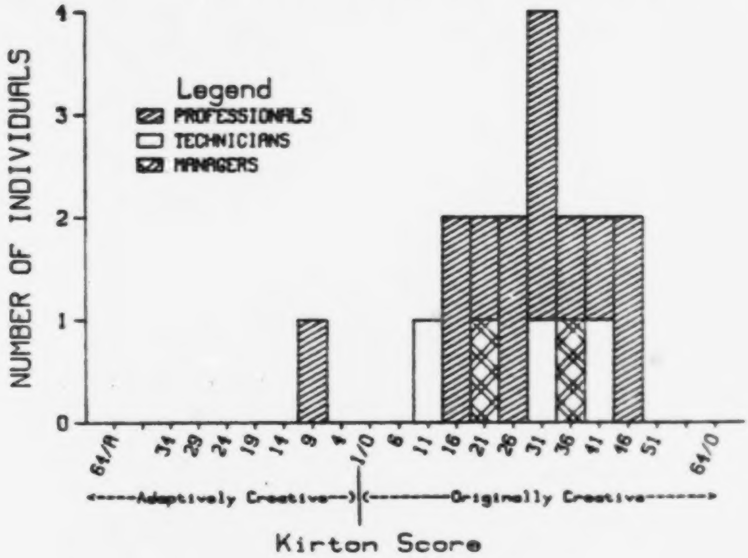

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FIGURE 5

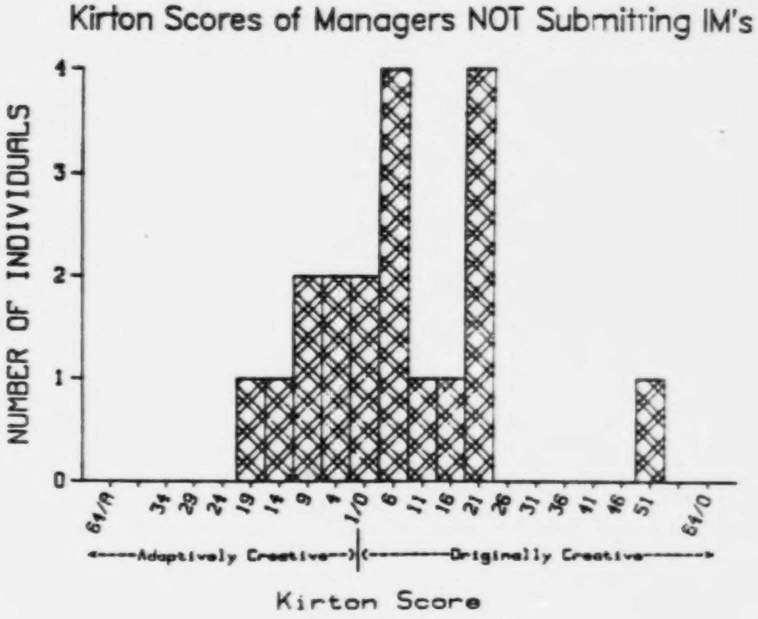
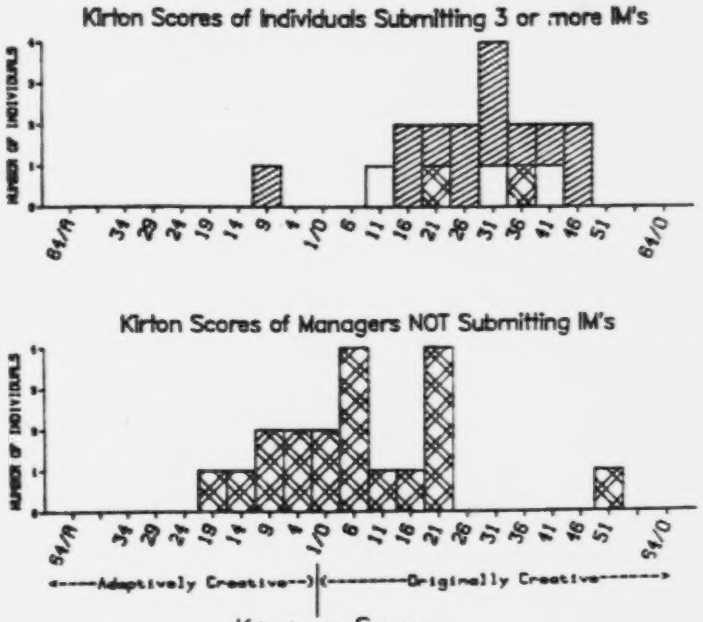

Kirton Scores of Managers NOT Submitting IM's

FIGURE 6


Kirton Scores of Individuals Submitting 3 or more IM's

Kirton Scores of Managers NOT Submitting IM's

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originally creative styles assume many different roles at Kodak. These results also indicate that the Kirton score of managers not submitting IM's was more adaptive than those submitting them. The Kirton Test scores for the managers (IM and non-IM submitters, mean score = 10/0) are not unique to Kodak and can be cross-validated by a data base described by Kirton (1982). In a random sample of 256 R&D personnel (Holland & Keller, 1978) and 90 R&D managers (Davies, 1982), the Kirton mean scores were 4.9/0 and 8.2/0, respectively. Taken at face value, the comparison of the Holland and Keller (general R&D personnel) and the Davies (R&D managers) data suggest that managers have a more "creative style" than their staff. The Holland & Keller R&D personnel sample cannot, however, be compared to the Kodak sample because the professionals and technical personnel in our study represent a selected subset of Kodak R&D personnel (i.e., IM submitters only). Within the Photographic Divisions of Kodak Research Laboratories those individuals submitting three or more IM's had an average Kirton test score (28/0) that suggests an operating style that is very different (i.e., more originally creative) from that of the majority of management tested.

Supplemental data, not collected in this study but collected at a workshop conducted at the Center for Creative Leadership by Kirton and Grysciewicz, are useful in interpreting these sources. Appendix C indicates the perceived advantages and disadvantages of being at one end or the other of the adaptively creative vs originally creative spectrum as perceived by attendants at Creativity Week IV. To assist in interpretation it will be assumed that these comments reflect general perceptions of individuals with originally and adaptively creative scores. This assumption will need to be validated in a broader based study. Several implications are suggested:

1. Conflicts. Many adaptively creative managers and those IM submitters with high "O" scores may have conflicts with one another. The data in Appendix C suggest that those things which adaptively creative individuals value such as structure, continuity and predictability may be at odds with the variation, extra energy and desire for change which the more originally creative individuals need. When such an individual generates an idea outside his assigned line of work, and brings it to his more adaptive management, it is often viewed as an annoyance. It does not fit into the structure within which the manager operates. In turn, the manager's response leads to frustration on the part of the originator.

2. A Relay Team Approach. Data in Appendix C indicate that many individuals with originally creative styles like to start projects but not necessarily carry them through to completion. Individuals with scores in 30-41/0 range stated that "if there are too many of us, nothing gets done," they "stop once the end is seen," and "hate to translate thoughts into written words." On the other hand, individuals with more adaptively creative styles expressed continuity, dependability and stability as advantages of their style.

Again, conflicts may arise due to these differences. What compounds this problem even more is that individuals in the 10/0-20/0 range say they "see both points of view". Therefore, they may not understand why others with more original scores cannot follow through. What is needed is a team approach which combines the skills of originally creative individuals generating ideas with the follow-through skills of those with more adaptively creative styles.

Several structural and procedural changes are suggested by an acknowledgement of differences in creative style:

1. Ideas from Originally Creative Individuals Can be Bubbled Up to Management. Adaptively creative individuals have an outlet for their style as they form the mainstay of the present organizational structure and are predominantly responsible for the present and near future income of the company. However, originally creative individuals lack an outlet. Both the originator and the company suffer if one is not found.

   An environment filled only with adaptors may result in stagnation, whereas one consisting solely of originators may result in lack of visible productivity. In a large corporation it is necessary to utilize those individuals that see into the future in order to explore areas for potential diversification.

   Management has an obligation to grow and, therefore, needs to put in place the means whereby the creative talent of their people is tapped for the kind of ideas that will allow growth, i.e, you're betting on people to provide the spark that will ignite tomorrow's fire, which in turn will have to be managed if it is to get anywhere.

   In a small company a special conduit for ideas is usually not necessary as the entrepreneur is frequently both a manager and an innovator. Also, in a small company, the entrepreneur is not far removed (physically) from those employees generating ideas (see Figure 7). Another characteristic of small companies that affects innovation is the lack of a large middle management "filter". Large companies have several levels of filter which makes it difficult for ideas to get to the decision level of the corporate structure (see Figure 8). In large companies it is generally not a prerequisite for a middle manager to also be an innovator. An innovation system is necessary which provides a legitimate channel for ideas to bypass many of the unnecessary filters and decreases the amount of time it takes for an idea to reach the proper decision making body (see Figure 9).

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FIGURE 7

ENTREPRENEURIAL STRUCTURE

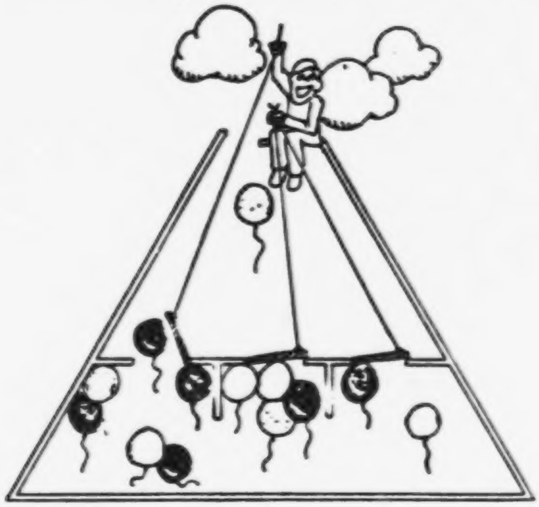


FIGURE 8

TRADITIONAL MANAGERIAL STRUCTURE

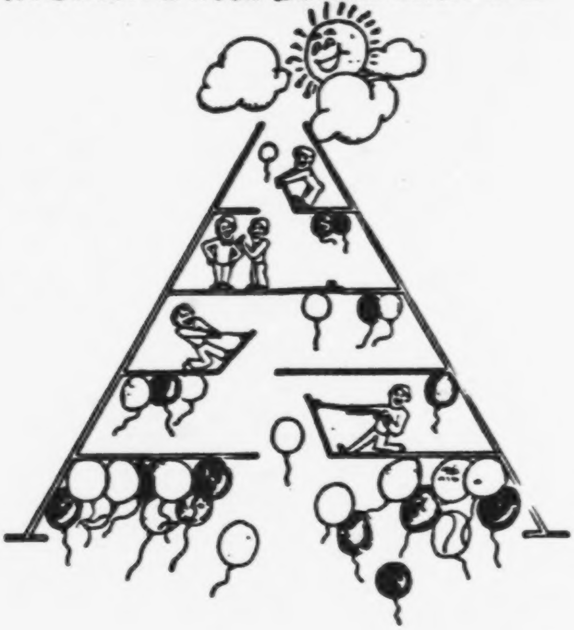
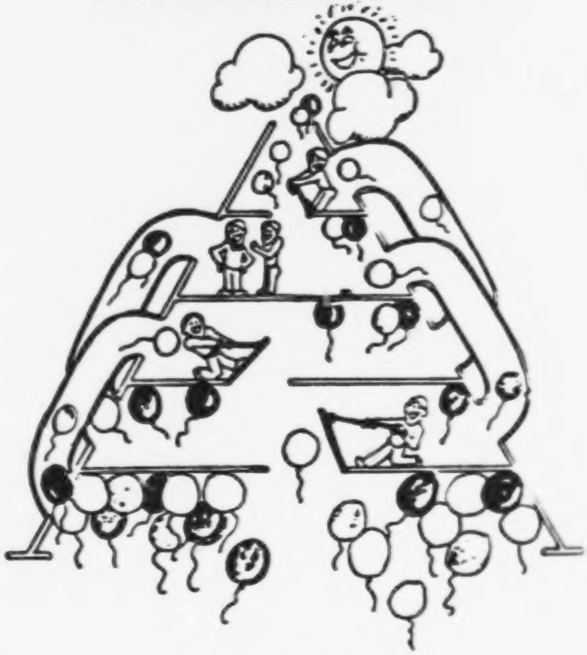


FIGURE 9

TRADITIONAL MANAGERIAL STRUCTURE
PLUS INNOVATION SYSTEM



2. As Technological Trends Develop, Management Uses Channels Such as an Office of Innovation to Elicit Related Ideas from Originally Creative Individuals. Since a difference in style exists between IM submitters and those managers who do not submit IM's, an innovation system must be designed to meet the needs of both. A facilitator of an innovation system needs to be able to relate to the range of creative styles (adaptive to original). The facilitator thus becomes a "bridge" between the originally creative group and its usually more adaptive management. This would improve the flow and implementation of ideas, without style acting as an impediment. Management could use "idea ticklers" (i.e., a news letter indicating areas in which upper management is interested in soliciting inventions) to inform potential inventors of current interest. As inventors become actively involved in the growth of the company, they will feel that they have a greater share in the company's future. This should reflect itself positively in increased productivity.

3. Invest in People, Not Ideas. There are many possible ways to "invest" in creative people. These include eliciting their ideas in a personal fashion, helping idea originators to develop and evaluate their ideas and educating them as to how to get their ideas implemented (i.e., become product

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champions). What is needed is a program which identifies and invests in those creative, innovative individuals within a company irrespective of their personality traits and work styles. A final and difficult way for managers to demonstrate such investment is to sustain the commitment to individuals when a specific idea doesn't happen to "pan out". The organization must keep in mind that some day one or more of these individuals may come up with the "big idea" that becomes the backbone of the company's profitability for years to come. By investing in these individuals, management is also creating and maintaining a climate for innovation. People will then more freely offer their ideas. Out of these, the so-called "good" ideas will emerge.

This approach reflects a subtle difference in emphasis, but one which may make the difference between future success and failure in a quickly changing economy. Garnering good ideas can be accomplished in various ways. One way is through the use of a suggestion system. This approach can be likened to searching for rose blossoms in a field. The wild rose bush has many prickly branches and very few perfect blossoms. Investing more directly in creative original people is like domesticating and cultivating roses in a garden. By carefully tending the garden one produces the best flowers and by picking the plant frequently, one gets more flowers of higher quality. As with the garden, if originally creative people are carefully tended, they will develop. If their ideas are not evaluated properly, originally creative people will decrease the production and quality of their novel ideas. It is not the plant's responsibility to cultivate itself; it is the responsibility of the gardener.

4. Develop Acceptance of the Diversity of Creative Styles. A vehicle such as an educational program is needed to enable both groups to see their values to the company and to each other. A useful way of visualizing the relationship between originally creative and adaptively styles is contained disorder. Its like a core of a nuclear reactor. If the internal disorder is allowed to run rampant it will destroy the reactor. Its containment, however, allows one to harnass its energy and produce a balance. Adaptively creative individuals which form the bulk of an organization are likened to the reactor, and the originally creative individuals to the reaction within it. They need to work in harmony for the benefit of the organization.

ACKNOWLEDGEMENT

I thank Tom Whiteley, Director of the Emulsion Research Division (KRL), for allowing me to run this study and being supportive of the PDOI operation. I also thank Robert Bacon, my collaborator in setting up PDOI, for sharing his insightful approaches to people, and for inspiring me with his strong, long-term commitment to creativity and innovation. I am also grateful to Michael

Kirton and Stan Gryskiewicz for being very cooperative in supplying the necessary data and allowing me to use the Inventory and Appendix B, respectively. I also thank my friend Carey Corea for translating the concept of the evolution of the need for an innovation system in industry to a pictorial form (Figures 7-9). I am most grateful to Jenny Covill-Servo for her patience and time spent in putting together this paper and for sharing her statistical expertise and her understanding of different cultural interactions which supplied additional insight in looking at the creative style of individuals.

Finally, credit is due to those creative individuals for their trust, their patience in working with PDOI, and most of all sharing themselves.

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APPENDIX A

KIRTON ADAPTION–INNOVATION INVENTORY (KAI) RESPONSE SHEET

Please read these notes before completing the other side of this sheet.

We all find it necessary to present a particular image of ourselves consistently over a long period. In some cases this proves easy as we are like this; sometimes it is very difficult as we are not like this at all.

For instance, some of us are early risers. It is easy for such people to present the image of good timekeepers at work. So if you are an early riser and were asked how easy or hard it is for you to present an image at work of a good timekeeper you would put a clear cross on the scale below on or near 'Very Easy'.

Very Hard	*Hard*	*Easy*	*Very Easy*

. . . . X . . .

If you are the extreme other sort, you would find being on time every morning for a long period difficult, and you may well put a cross on the scale at the 'Very Hard' end.

Please indicate the degree of difficulty (or ease) that would be required for you to maintain the image, consistantly for a long time, that is asked of you by each item below.

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How easy or difficult do you find it to present yourself, consistently, over a long period, as:

	Very Hard	*Hard*		*Easy*	*Very Easy*
1. A person who is patient.	. . . .	. . . .	. . . .	. . . .	. . . .
2. A person who conforms.	. . . .	. . . .	. . . .	. . . .	. . . .
3. A person who when stuck will always think of something.	. . . .	. . . .	. . . .	. . . .	. . . .
4. A person who enjoys the detailed work.	. . . .	. . . .	. . . .	. . . .	. . . .
5. A person who would sooner create something than improve it.	. . . .	. . . .	. . . .	. . . .	. . . .
6. A person who is prudent when dealing with authority or general opinion.	. . . .	. . . .	. . . .	. . . .	. . . .
7. A person who never acts without proper authority.	. . . .	. . . .	. . . .	. . . .	. . . .
8. A person who never seeks to bend (much less break) the rules.	. . . .	. . . .	. . . .	. . . .	. . . .
9. A person who likes bosses and work patterns which are consistent.	. . . .	. . . .	. . . .	. . . .	. . . .
10. A person who holds back ideas until they are obviously needed.	. . . .	. . . .	. . . .	. . . .	. . . .
11. A person who has fresh perspectives on old problems.	. . . .	. . . .	. . . .	. . . .	. . . .
12. A person who likes to vary set routines at a moment's notice.	. . . .	. . . .	. . . .	. . . .	. . . .
13. A person who prefers changes to occur gradually.	. . . .	. . . .	. . . .	. . . .	. . . .
14. A person who is thorough.	. . . .	. . . .	. . . .	. . . .	. . . .
15. A person who is a steady plodder.	. . . .	. . . .	. . . .	. . . .	. . . .
16. A person who copes with several new ideas and problems at the same time.	. . . .	. . . .	. . . .	. . . .	. . . .
17. A person who is consistent.	. . . .	. . . .	. . . .	. . . .	. . . .

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APPENDIX B

CHARACTERISTICS OF ADAPTORS AND ORIGINATORS*

THE ADAPTOR	THE ORIGINATOR
CHARACTERIZED BY PRECISION, RELIABILITY, EFFICIENCY, METHODICALNESS, PRUDENCE, DISCIPLINE, CONFORMITY.	SEEN AS UNDISCIPLINED, THINKING TANGENTIALLY, APPROACHING TASKS FROM UNSUSPECTED ANGLES.
CONCERNED WITH RESOLVING RESIDUAL PROBLEMS THROWN UP BY THE CURRENT PARADIGM.	COULD BE SAID TO SEARCH FOR PROBLEMS AND ALTERNATIVE AVENUES OF SOLUTION, CUTTING ACROSS CURRENT PARADIGMS.
SEEKS SOLUTIONS TO PROBLEMS IN TRIED AND UNDERSTOOD WAYS.	QUERIES PROBLEMS' CONCOMITANT ASSUMPTIONS: MANIPULATES PROBLEMS.
REDUCES PROBLEMS BY IMPROVEMENT AND GREATER EFFICIENCY, WITH MAXIMUM OF CONTINUITY AND STABILITY.	IS CATALYST TO SETTLED GROUPS, IRREVERENT OF THEIR CONSENSUAL VIEWS, SEEN AS ABRASIVE, CREATING DISSONANCE.
SEEN AS SOUND, CONFORMING, SAFE, DEPENDABLE.	SEEN AS UNSOUND, IMPRACTICAL OFTEN SHOCKS HIS OPPOSITE.
LIABLE TO MAKE GOALS OF MEANS.	IN PURSUIT OF GOALS TREATS ACCEPTED MEANS WITH LITTLE REGARD.
SEEMS IMPERVIOUS TO BOREDOM, SEEMS ABLE TO MAINTAIN HIGH ACCURACY IN LONG SPELLS OF DETAILED WORK.	CAPABLE OF DETAILED ROUTINE (SYSTEM-MAINTENANCE) WORK FOR ONLY SHORT BURSTS.

The Adaptor	The Originator
IS an authority within given structures.	TENDS to take control in unstructured situations.
CHALLENGES rules rarely, cautiously, when assured of strong support.	OFTEN challenges rules, has little respect for past custom.
TENDS to high self-doubt. Reacts to criticism by closer outward conformity. Vulnerable to social pressure and authority; compliant.	APPEARS to have low self-doubt when generating ideas, not needing consensus to maintain certitude in face of opposition.
IS essential to the functioning of the institution all the time, but occasionally needs to be "dug-out" of his systems.	IN the institution is ideal in unscheduled crises, or better still to help to avoid them, if he can be controlled.

---

*Research Edition/Kirton Adaption - Innovation Inventory (KAI), M. J. Kirton; NFER Publishing Company Ltd., 1977.

APPENDIX C

PERCEIVED ADVANTAGES AND DISADVANTAGES OF CREATIVE STYLE OF THOSE PARTICIPANTS ATTENDING CREATIVITY WEEK IV

September 1981

Center for Creative Leadership
Greensboro, North Carolina

22/A - 3/A

MORE EFFICIENT
BETTER OPTIMIZER
MORE CONSISTENT
MORE PREDICTABLE
MORE CREDIBLE
BETTER MANAGERS OF RESOURCES OF TIME AND MONEY
MORE SUPPORTIVE AND ACCEPTING
MORE STABLE
BETTER AT SYNTHESIS
POSSIBLY LESS FRUSTRATED IN FULFILLMENT OF LONG TERM LIFE GOALS

2/A - 3/O

ADAPTIVE

ADVANTAGES:

- STRUCTURE
- STABILITY
- PREDICTABILITY
- SECURITY
- CONTINUITY
- CONSISTENCY
- DEPENDABILITY
- TRUST
- PROBABILITY OF SUCCESS

DISADVANTAGES:

- LACK OF IMAGINATION, INNOVATION
- STAGNATION
- LESS LONG TERM VIABILITY
- CAN'T FUNCTION IN UNSTRUCTURED SITUATIONS

INNOVATIVE

ADVANTAGES:

- NEW POLICIES
- NEW APPROACHES
- TRENDSETTERS
- FUNCTIONS WELL IN TIMES OF CRISIS
- GOOD DELEGATORS

4/0 - 9/0

ADVANTAGES:	DISADVANTAGES: NONE
DEPENDABLE	
INTEGRATED	
WELL-ROUNDED	
VERSATILE	
SENSITIVE	
ADAPTIVE	
HIGHLY EMPLOYABLE	
INDIVIDUALISTIC	

10/0 - 20/0

ADVANTAGES:	DISADVANTAGES: NONE
POSITIVE THINKERS	
VERSATILE - SEE BOTH VIEW POINTS	
LIKE TO PARTY	
SELF SATISFIED	
LAISSEZ-FAIRE	
SET GOALS FOR ADAPTORS AND INNOVATORS	
CALCULATED RISK-TAKERS	

21/0 - 29/0

ADVANTAGES:

- CAN ADAPT TO BOTH ENDS
- CAN MANIPULATE AN ADAPTIVE STRUCTURE
- CAN BE PERCEIVED AS A MEMBER OF THE TEAM AND SLIP IN INNOVATIONS
- CAN BRIDGE BETWEEN PEOPLE AT BOTH ENDS
- HIGH PROBABILITY OF INNOVATIVE IDEAS HAVING PRACTICAL APPLICATION

DISADVANTAGES:

- DON'T FIT IN
- DETERMINE OWN AGENDA WHICH MAY NOT BE RELEVANT TO THE ORGANIZATION'S AGENDA
- DIFFICULT TO COMMUNICATE WITH PEOPLE AT BOTH ENDS
- EXTRA ENERGY REQUIRED TO FIT IN
- ONLY PERSON IN THE OFFICE WITH A MESSY DESK
- LOW TOLERANCE FOR ADAPTORS

30/0 - 41/0

Advantages:

- Easy to get noticed in big organizations
- Easy for them to get along with people below
- Can amuse self
- Will work day and night on a problem
- Necessary for big changes
- Starts many projects
- Optimistic
- Impatient
- Life is not boring

Disadvantages:

- Hard to get positive recognition in big organizations
- Hard to get along with people above
- Gets stuff stolen by bosses
- Will work on a problem day and night to the detriment of other relationships
- If have a "controller" above us, he makes our life awful
- Too many of us get nothing done
- Not interested in small tasks
- Stops once the end is seen
- Must learn to communicate with others
- Need a translator so others can understand
- Hate to translate thoughts into written words
- Girls think we are weird (so do adaptors)

42/0 - 64/0

ADVANTAGES:

- FUN AND ADVENTURE
- CHANGE
- OPENNESS
- SEX LIFE
- SENSE OF HUMOR
- SARCASM-PUNSTERS
- LAUGH AT THEMSELVES
- WRONGNESS OK
- HIGH ENERGY
- LOVE NATURE
- PERSEVERANCE
- EMOTIONAL
- INTUITIVE

DISADVANTAGES:

- TOO FLEXIBLE
- TOO MUCH VARIETY
- BORED TOO EASILY
- TAKING ON TOO MUCH
- CONTEMPT FOR BUREAUCRACY
- IMPATIENT
- OVER CRITICAL
- EMOTIONAL
- HASTY

J) PUBLIC - PRIVATE CREATIVITY

"PUBLIC AND PRIVATE CREATIVITY"

TERESA M. AMABILE
BRANDEIS UNIVERSITY AND THE CENTER FOR CREATIVE LEADERSHIP

SHARON J. SENSABAUGH
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ABSTRACT

In a field study of the factors that influence creativity in research and development laboratories, 120 R&D scientists were interviewed using a critical incident technique. Each scientist was asked to describe two events from his or her work experience: one that exemplifies a high level of creativity, and one that exemplifies a low level of creativity. In telling their stories, the scientists were asked to focus on the factors of persons and work environments that distinguished these particular events. A detailed content analysis revealed striking differences between work environments present during the high creativity events and work environments present during the low creativity events. Most notably, environments supporting creativity were marked by freedom for individual scientists; by contrast, environments undermining creativity were marked by constraint. These findings, together with results from psychological experiments on creativity, support the Intrinsic Motivation Principle of Creativity: People will be most creative when they feel motivated primarily by the interest, enjoyment, satisfaction, and challenge of the work itself -- and not by external pressures.

INTRODUCTION

The "public" creativity of individuals -- their level of creative productivity in everyday work settings -- can be strongly influenced by factors that alter levels of "private" creativity -- flexibility of an individual's idea-generation in any setting. Decades of creativity research have revealed that an individual's "private" creativity depends on three types of factors: Domain-relevant skills (knowledge, talent, and experience in the particular domain of endeavor); Creativity-relevant skills (styles of thinking and working that are particularly conducive to creativity); and Task motivation (an individual's perceptions of his motivation for undertaking a particular task) (1).

Recent research has shown that the third component, task motivation, can be a particularly powerful determinant of creative behavior and, moreover, that task motivation can be strongly affected by the work environment (1) (2). Task motivation can be categorized into two main types. Intrinsic motivation is the motivation to do something primarily for its own sake -- because it is interesting, enjoyable, challenging, intriguing, or in some other way intrinsically satisfying. Extrinsic motivation is the motivation to do something primarily in order to achieve some extrinsic goal, such as gaining a reward, meeting a deadline, obtaining a favorable evaluation, winning a competition, or accomodating procedural constraints imposed by someone else (3). A great deal of evidence suggests, first, that intrinsic motivation can be changed to extrinsic motivation by the imposition of environmental constraints such as reward structures, evaluation structures, procedural restrictions, and deadlines (4) and, second, that the imposition of such constraints also results in a decrease in creativity (1).

These findings are summarized in the Intrinsic Motivation Principle of Creativity: People will be most creative when they feel motivated primarily by the interest, enjoyment, satisfaction, and challenge of the work itself -- and not by external pressures. The previously-cited experiments testing this principle employed a carefully controlled paradigm. In these studies, subjects of various age groups and backgrounds performed one of several types of creativity tasks under either the presence of the absence of some environmental constraint (such as offered reward, expected evaluation, or surveillance). Subsequently, when subjects' work was rated on creativity by experts in the task domain, the work produced by subjects who had been constrained was consistently rated as lower on creativity than that produced by nonconstrained subjects.

Though internally valid, these experiments cannot directly inform us about the most important factors affecting the creativity of individuals working in organizations. Perhaps the factors studied experimentally do not play a major role in the day-to-day creativity of people whose jobs supposedly require innovation. In order to determine the actual influences on creativity within an organizational setting, we undertook a nonexperimental study of creative and uncreative incidents in research and development laboratories.

This study had five major goals: (1) to identify the major factors influencing creativity negatively and positively within the R&D setting; (2) to determine the extent to which these factors overlap with the factors studied experimentally; (3) to devise a reliable and valid methodology for describing the climate for creativity in any given R&D laboratory (and, indeed, in any organizational setting); (4) to devise techniques for assessing the ways in which the climate in a particular laboratory influences the creative productivity of people working within it; and (5) to develop customized programs for improving the climate for creativity in any given R&D laboratory.

METHOD

The participants in this study were 120 R&D scientists for over 2 dozen different corporations in the United States, Canada, Mexico, and Europe. They were interviewed individually for approximately 20 minutes each. The interview question, which participants received in advance, asked them to tell two stories of creativity from their work experience: one that exemplified a high level of creativity (defining creativity in any way that they see appropriate), and one that exemplified a low level of creativity. For each story, they were asked to describe the event and the context and, in particular, anything about the persons involved or the work environment that distinguished this particular event.

The tape-recorded interviews were transcribed verbatim and subjected to a detailed content analysis for identification of the major factors influencing creativity in R&D. First, four major themes were identified and then, within each major theme, the most frequent subthemes were listed. Each stage of the content analysis was performed by two independent readers who marked segments of the transcripts according to the major themes and subthemes. Their level of agreement was quite high; any disagreements were settled by discussion to consensus. Further details on the analysis are reported elsewhere (5).

RESULTS

Four main themes captured most of the comments in the content analysis of the interview transcripts. The four themes are:

1. Environmental Stimulants to Creativity
2. Environmental Obstacles to Creativity
3. Favorable Personal Characteristics
4. Unfavorable Personal Characteristics

Environmental Stimulants and Obstacles are defined as any factors *outside the problem-solver(s)*, including other people, that facilitated or inhibited creativity. Personal Characteristics are defined as those factors operating *within the individual or problem solving group*.

Through a process examining the specific comments falling under each of the above themes, subthemes were developed to give a clearer picture of the information captured by the main theme. The following sections include the most frequently-mentioned subthemes under each main theme.

Environmental Stimulants

(1) Freedom and Control

> "The creative environment is one in which individuals are faced with fairly general missions or challenges, but are free to determine the approach to solving these problems. They are free to develop definitions of problems, and free to develop options for solutions."

* * *

> "There was not a lot of restriction on our ability to try new things and to look at different ways of doing things. They did not manage us closely. Instead, we had responsibility and control. We had a lot of freedom, and when you have that kind of freedom, you tend to work a lot harder"

Over two-thirds of the participants interviewed mentioned freedom as an important factor in the work environment contributing to their creativity. Freedom is defined in this case as freedom to choose what to do and/or how to accomplish it. It involves a sense of control over one's work and ideas.

(2) Good Project Management

> "As a manager, you have to take the risk and let people deviate from the path once in a while. You must have faith in people, give them a looser rein."

* * *

> "There wasn't a lot of jealousy or bickering over silly things. We had great open communication. I would try to give each person working on it the ideas that they can each contribute to a goal, and I would make that goal clear. But I wasn't going to tell them how and what to do. I tried to discover their talents and what they do best and like to do, and then I turned them loose."

Good Project Management includes a variety of comments focusing on the effective managing of individual projects. Over one-half of the participants interviewed related comments falling in this area. Specifically some of the topics mentioned were good planning and organization, clear goals and problem definition, good communication, and a manager with good interpersonal skills exhibiting faith in the project team and serving as a positive role model.

(3) Sufficient Resources

> "He was successful partly because he had access to the proper kind of equipment and tools. By that I mean both hardware and adequate computing facilities."

* * *

> "Something very important was the support provided. There was an allocation of people and capabilities throughout the organization. It was possible to get lots of diverse information."

One-half of those interviewed mentioned having access to appropriate resources, including money, equipment, information, and people as being a stimulant to their creativity.

(4) Various Organizational Characteristics

> "The organization is willing to give people the opportunity to try and will accept failure. In addition, it is friendly, with little red tape, high trust, and open communication from all levels."

* * *

> "The company made a committment. There was an environment in this company that prized creative solutions to problems and wonderful things happened."

This is another general sub-theme capturing comments about the organization as a whole. The organization might be described as having a collaborative atmosphere, a high expectation of creativity, an acceptance of failure, and/or a non-bureaucratic structure. Well over one-third of the managers made comments included in this sub-theme.

Environmental Obstacles to Creativity

(1) Constraint

> "That was a low creativity situation because they wanted me to follow a particular path without adding any of my input into it. If you want to use your creativity, you can't be told the exact way something should be done."

* * *

> "I was forced to work on the project along the lines that were indicated. The work that I really wanted to do was done in spite of it. But for that, I got a totally negative reaction from management. I was told not to mess around with this because it was too far out. The result was a disaster."

These quotes illustrate the single most frequently mentioned obstacle to creativity -- constraint. Constraint is defined by a lack of freedom or choice in deciding what to do and/or how to go about it. Approximately one-half of the participants indicated this as an obstacle to their creativity or the creativity of the group. This fits nicely with the data concerning environmental stimulants. Just as freedom is seen as an important stimulant to creativity, constraint is seen as a major obstacle.

(2) Various Organizational Characteristics

> "The structure I'm working in is not matrix management, but matrix mismanagement. I am reporting to too many different organizations and I seem to be part of too many different organizations all at once."

* * *

> "The problem is that there is a tendency to drive people toward management -- that is the way to move up -- and no drive to keep them in the technical side. There is a dual ladder system, but it is clearly not an equitable situation. One ladder is shorter than the other."

Over one-half of the participants spoke of a general organizational policy or structure as being a hindrance to their creativity. This category included comments concerning inappropriate reward systems, as illustrated by the second quotation, and comments about the organizational culture, i.e., too frequent meetings, status issues, and poor communication between divisions. These were just a few of the factors mentioned by participants. Organizational characteristics, taken together, constitute the second most frequently mentioned obstacle to creativity.

(3) Poor Project Management

> "There were too many people involved in the project, and too many inputs being put into it to determine what the project should be. The inputs were changing with time so there was not a well-defined goal for the people involved."

* * *

> "Our project work suffered because goals weren't being set; it's hard to work without certain goals in mind. The supervisor wasn't good at making decisions."

One-third of the managers commented on the management of the projects as an inhibiting factor for creativity. Some specific examples of poor project management included poor planning and organization, unrealistic expectations or time frames, poor communication skills, and low expectation of creativity and/or success. Just as good project management facilitated creativity by communicating a clear goal while allowing some freedom in the accomplishment of that goal, poor project management often combined an unclear goal with a very directive approach to the individual tasks.

(4) Time Pressure

> "There was pressure to get the product produced quickly. It was a long range product, but this is a short range company."

Not having sufficient time was seen as an obstacle by approximately one-third of those interviewed. There was no time to be creative because often there was barely enough time to get the job done. Time restraints often pushed people into doing something "like they always did," leaving them little time to reflect on or assess the situation and perhaps find a new perspective. Doing something became the primary focus.

Favorable Personal Characteristics

Many of the comments described characteristics of the people involved. Those descriptions most frequently used fell into these sub-themes:

Self-motivation -- The person (or persons) was described as being internally motivated, enthusiastic, excited, and highly involved.

Special Cognitive Abilities -- This category captured comments about an individual's special problem solving skills, such as analytical reasoning or intuition.

Risk-orientation -- Qualities included here related an individual capacity and/or attraction for taking risks and playing against the odds. Such qualities included were unconventional attitudes and style and an attraction to challenge.

The following are some examples of the comments made concerning individual style and behavior:

> "The difference between high and low creativity? I think 75% of it is the person. A person has to be somewhat self-motivated. The person has to have an inner drive. I don't know how a manager can motivate someone if they don't have that inner drive already."

* * *

> "A certain amount of intuition can help."

* * *

> "In this group, people were not afraid to step over the boundary lines. Because this is a frontier-type of chemistry, your mind-set has to be such that you can accept that your

> results are going to be new, and that you
> won't know exactly what to do with them."

Unfavorable Personal Characteristics

This category had the fewest of all responses. It accounted for less than ten percent of the total number of comments made. From those characteristics mentioned, the major three subthemes that emerged were:

> Lack of motivation -- The individual(s) was described as bored or lacking committment, being pessimistic or complacent toward the work.
>
> Lack of skill -- An individual might not have the necessary knowledge or experience to perform adequately.
>
> Inflexible -- A person characterized by strong opinions or preconceptions with little willingness to change.

Once again, there is a nice correlation between stimulants and obstacles. Just as self-motivation was seen as a positive influence on creativity, a lack of motivation is seen as a detriment.

> "If one person doesn't care and doesn't do his job right, it affects the whole team because a piece of the puzzle will be missing. There's a lack of commitment."

* * *

> "My own preconceptions served as an obstacle."

* * *

> "It's hard to tell what the problem was with these people. Most of them just stood around and did nothing all day."

CONCLUSION

The results of this study provide clear support for the Intrinsic Motivation Principle of Creativity; highly creative events in R&D were most likely to occur in an atmosphere of freedom rather than constraint, with highly self-motivated individuals. Not only does this study provide a conceptual replication of the laboratory experiments on creativity, however. It goes beyond the results of those experiments by pointing to a number of factors in the work environment that can serve as stimulants to creativity.

The implications of this study for managing creativity and innovation are rich: (1) It is important to staff not only for skills and experience, but also for a high level of intrinsic motivation. (2) Managers should identify and fortify those elements of the work environment that we have shown to serve as stimulants to creativity. (3) Managers should also identify and eliminate those elements of the work environment that we have shown to serve as obstacles to creativity. If these steps can be taken, not only should individual motivation and individual creativity increase, but, as a consequence, organizational innovation should flourish as well.

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"INNOVATIVE PROBLEM SOLVING AND MILITARY LEADERSHIP"

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ARMED FORCES STAFF COLLEGE

ABSTRACT

During the past three years, the Armed Forces Staff College has offered an elective course in innovative problem solving. As a result, over 200 future leaders of the four armed services have been trained in the techniques of using the imagination to solve unprecedented problems. This facility will enhance the ability of future military leadership to provide a credible defense in a world of accelerating change.

INTRODUCTION

The Armed Forces Staff College (AFSC), located in Norfolk, Virginia, is one of the three component colleges of the National Defense University (NDU). Its primary mission is to train mid-career officers of all services to plan and execute joint military operations. The main course is five and a half months long and is held twice each year. One of the elective offerings is a course in innovative problem solving.

The elective began in 1982 as an initiative of Lieutenant General John Pustay, USAF, then President of NDU, who directed that each college incorporate instruction to enhance the creative thinking abilities of its students. Because I had published an article in this area, Major General Thomas Darling, USAF, then Commandant of AFSC, directed me to create an elective course on the subject.

THE INNOVATIVE PROBLEM-SOLVING ELECTIVE

My approach was to construct a skills-building course, focusing on problem-solving techniques. A study of the models from Synectics, the Creative Problem Solving Institute, and the Center for Creative Leadership confirmed that such a course would work. The objectives of the elective were to enable the students to:

1. Describe the difference between creative thinking and analytical thinking.

2. Describe the creative thinking process.

3. Describe the work environment most suitable to creative effort.

4. Discriminate between problems that require a creative solution and those that do not.

5. Describe the creative problem-solving steps.

6. Redefine a problem.

7. Lead a group in several variations of brainstorming.

8. Lead a group in several variations of excursion techniques.

9. Synthesize hundreds of ideas into a few workable options.

10. Evaluate innovative options.

The course focused on producing learned behaviors that achieve innovative results--"make it happen" techniques that work well even if the leader-manager is not exceptionally innovative. This method contrasts with stressing methods for enhancing personal creativity, which result in a "let it happen" approach to getting innovative results. In other words, I introduced and allowed plenty of practice opportunities in techniques that work individually or in groups at various stages of the following general model:

1. Redefine the problem.

2. Generate alternatives.

3. Converge.

4. Evaluate and decide.

Also, I highlighted similarities to and differences from the traditional logical/linear military problem-solving model:

1. Recognize the problem.

2. Collect data.

3. Develop possible solutions.

4. Analyze and compare options.

5. Select best option.

A wide variety of military applications of creative thinking and innovative problem solving were stressed:

- + Research
- + Planning
- + Policy development
- + Technology development
- + Intelligence analysis
- + Combat
- + Staff decision papers
- + Negotiating
- + Problem solving
- + Decision making

Since 1982 seven classes have taken the elective, which continues to be offered at AFSC; and over 200 future military leaders have mastered the skills of individual and group innovative problem solving.

OTHER MILITARY INITIATIVES IN CREATIVE THINKING

This and other courses like it (such as the one taught at the Industrial College of the Armed Forces) are not the only instances of developing leaders who can engage the powers of the imagination to solve unprecedented problems. In 1975 the Army inaugurated the Organizational Effectiveness (OE) program, which trains internal management consultants. Since then thousands of officers have received this specialized, intensive course, which includes training in group problem-solving skills. In turn they have assisted thousands of other senior Army leaders, exposing them to a variety of current management techniques. In addition, an electronic network of creative minds within and without the military establishment, called "Delta Force," was established to think new thoughts, find opportunities for excellence, and discover new solutions. Although no longer in existence, its methods and the influence of the many OE-trained officers have been absorbed into the present structure of the Army. Further, the Army Research Institute continues to study creativity and its applications to leadership through the work of Eliot Jacques.

CONCLUSION

To put these initiatives in perspective, the military establishment has always discovered its solutions by studying the past. Most leaders have believed that the surest way has always been that which is informed by tradition. Until recently they have not experienced the competitive pressures to innovate known to the world of business, such as rapid changes in technology, fierce competition, and the demands for quality by cost-conscious consumers. However, the military services are now finding themselves to be a part of future shock. With the fielding of over a hundred new weapons and equipment systems, unprecedented budget pressures, and the Soviet Union challenging our nation for military supremacy, the pressures to innovate have become overwhelming.

Therefore, it is well that we concern ourselves with the ability of military leadership to solve problems creatively. In a world of accelerating change, this facility will be needed to interact productively with the private sector, which has learned that it must innovate or die. But, more important, our ability to create an effective national defense depends on how well our leadership is able to find new solutions. It is reassuring that something is happening in this area, that courses in innovative problem solving are alive and well, and that a small but significant number of future leaders have had training and experience in these techniques and habits of thought, which may someday prove to be the ultimate "force multiplier."

"CREATIVITY ENTERS THE CURRICULUM AT NATIONAL DEFENSE UNIVERSITY"

LIEUTENANT COLONEL DANIEL B. CHAPLA, U.S. MARINE CORPS

NATIONAL DEFENSE UNIVERSITY

DISCLAIMER

This paper represents the views of the author and does not necessarily reflect the official opinion of the Industrial College of the Armed Forces, the National Defense University or the Department of Defense.

ABSTRACT

Senior level education for U.S. military officers was initiated by the separate services. War's growing complexity forced the services to undertake joint operations, which created the need for interservice or joint educational institutions. At the same time the military has learned that joint problems are usually complex and unprecedented and therefore require creative approaches to problem solving and decisionmaking. National Defense University's Executive Skills Development program seeks to help senior military officers and government civilian executives to develop skills in a systems approach to problem-solving and decisionmaking needed to meet the continuing challenges in the joint working world.

INTRODUCTION: BEGINNINGS OF JOINTNESS

The first really national-level look at problems of fighting a modern war came out of the War Department's reorganization after WWI. The country's industrial mobilization experience in this conflict had revealed woeful inadequacies for all-out war with 20th century technology. Success in future conflicts was seen to depend on vastly more effective organization and planning to mobilize the Nation's industrial economy and manpower. The National Defense Act of 1920 provided such planning, and noted industrialist Bernard M. Baruch and Assistant Secretary of War Dwight F. Davis took the first steps to educate military officers in techniques for industrial mobilization at the Army Industrial College established in 1924. Predecessor of today's Industrial College of the Armed Forces, the college curriculum reflected mobilization policy and procedure developments. (1, p. 31)

Excluding the operations of fledgling air forces and notwithstanding the Gallipoli Campaign in 1915, WWI was a seperate-service war which had no convincing examples of successful joint or combined operations. However, out of the early disasters of World War II, military leaders discovered the urgent need for joint action by ground, sea and air forces in order to succeed on the battlefield, and the need for military education to overcome the lack of experience in planning and executing these joint operations.

A recommendation made in November 1942 by General Henry H. "Hap" Arnold, Chief of the Army Air Corps, led to the establishment in June 1943 of the Army and Navy Staff College (ANSCOL). The school's mission was essentially to overcome the friction and misunderstanding among the services in unified and coordinated Army and Navy commands. When a joint committee examined military education needs after WWII, the ANSCOL was disestablished and replaced in August 1946 with the Armed Forces Staff College (AFSC) under the Joint Chiefs of Staff with a mission to prepare mid-career officers for joint and combined duty.

In November 1945, the Joint Chiefs of Staff directed the ANSCOL Commandant, Vice Admiral Harry W. Hill, to plan for a new postwar senior level college and, in February 1946, the War Department Military Education Board recommended another successor to the ANSCOL to be called the National War College. It would be ". . . concerned with grand strategy and the utilization of the national resources necessary to complement that strategy . . . and its graduates would exercise great influence on the formulation of national and foreign policy in both peace and war." Vice Admiral Harry W. Hill, the first Commandant, convened the first class on 1 July 1946 at Fort Lesley J. McNair in Theodore Roosevelt Hall, the former home of the Army War College. In his remarks to this class on its graduation in June 1947, General of the Army George C. Marshall emphasized the principal reason for the College was:

> . . . the unfortunate consequences of the lack of coordinated thinking and understanding prior to the war among the leading officials and staffs of the . . . [Army, Navy, and State Departments]. It does not require an argument, I am sure, to justify the assertion that such an intimate understanding and cooperation are of vast importance to the people of this country. (1, pp. 46-47)

The Army Industrial College, like the Army and Naval War Colleges, had suspended operations during WWII and reopened in January 1946. Later, in recognition of its already interservice character, it was renamed the Industrial College of the Armed Forces, formally designated a senior joint military educational institution and began operations under the Joint Chiefs of Staff in 1948. (1, p. 31)

THE NATIONAL DEFENSE UNIVERSITY

In January 1976, the National War College and the Industrial College of the Armed Forces joined to form the National Defense University. Until that time, they had reported separately to the Joint Chiefs of Staff. This step had been recommended by the Department of Defense Committee on Excellence in Education and directed by the Joint Chiefs of Staff in 1975. (1, pp. 31-33)

In just over a year from January 1976 thru January 1977, National Defense University's first President, Vice Admiral Marmaduke G. Bayne, USN, established an organization which promoted greater learning opportunities, more efficient use of administrative support resources and supported more students with fewer staff members. The College Commandants were relieved of great administrative burdens and freed to concentrate on curriculum, faculty and student development. The focus was shifted toward providing ". . . unique professional educational programs designed specifically to enhance the capabilities of mid-career military officers and civilians[1] to perform in senior positions of responsibility in our Government concerned with national security." (2, pp. 1-2)

BEGINNINGS OF BEHAVIORAL SCIENCE-ORIENTED MANAGEMENT STUDY

In the spring of 1977, shortly after becoming National Defense University's second President, Army Lieutenant General Robert G. Gard, Jr., began to examine ways in which the National Defense University's mission could be more effectively accomplished.

Most notable among General Gard's early acts was formation of an ad hoc study group to look at what other government, military and civilian organizations were practicing and teaching in the field of Human Resource Management. Initially called the "University Assessment Team," it later became the Executive Development Office. The team's three members were Army Colonels Irvin G. Katenbrink and Vernon B. Sones, both faculty members, and Air Force Lieutenant Colonel Charles Colvin, ICAF student. The team sought to identify what executives do; how this differs from what managers do; what executive skills are teachable and how best to teach them; and how to assist students in choosing the elective courses and activities most satisfying to their personal and professional needs. (3, p. G1)(7)(8)

The resulting "Executive Development Program" assessed individual strengths and weaknesses; helped the student reflect on and select career goals; and taught executive skills. A "Career Planning," workbook, focused on career goal-setting and was followed by an on-campus seminar. The Assessment program evaluated strengths and weaknesses in three areas:

Academic--Economics, mathematics/analytical decisionmaking, and English composition.

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[1] See APPENDIX 1 "NATIONAL DEFENSE UNIVERSITY MISSION AND STUDENT PROFILE."

Interpersonal Style Preferences--Two instruments used were: The Fundamental Interpersonal Relations Orientation Behavior (FIRO B) and the Strength Deployment Inventory (SDI).

Fitness--Voluntary health screening similar to an annual physical exam but with more intensive blood workup.

This program led to a new elective course "Individual and Organizational Productivity," which emphasized management and behavioral skills. Given to a randomly selected test group of 22 volunteer ICAF students, it was rated best elective in the fall of 1977 and offered again in the spring of 1978. "Executive Writing" and "Critical Reading" skill development courses were also offered and drew comparable numbers and similar enthusiastic response. (5, pp. G3-G5)

In the 1979-80 academic year both the Industrial College of the Armed Forces and the National War College had similar 10-session blocks of assessment and executive skills development. (4, pp. G1-G5)

In Academic Year 1980-81 the Executive Development Office continued the Assessment Program, adding the Myers-Briggs Type Inventory (MBTI). It also assisted the Colleges in refining and teaching their respective Executive Assessment and Skills Development courses. Both courses addressed group dynamics; management of communications, conflict and agreement; techniques for decisionmaking; a policy-making simulation and individual and organizational stress. A new elective course "Optimizing Executive Potential" was built around the videotape series "New Age Thinking" by Louis E. Tice founder of Pacific Institute. This course explored the processes of motivation, change and creativity and their potential application to executive functions. (5, pp. G3-G4)

A NEW DISCIPLINE IS INTRODUCED; CREATIVITY

Under the leadership of National Defense University's third President, Lieutenant General John S. Pustay, U.S. Air Force, the University established the Institute for Higher Defense Studies and three research centers: Strategic Concepts Development Center, Mobilization Concepts Development Center and War Gaming and Simulation Center. The Armed Forces Staff College became part of the National Defense University in 1981, and the Department of Defense Computer Institute was added in 1982.

General Pustay urged faculty and students alike to seek new innovative solutions to problems and to challenge the conventional wisdom in their studies of national strategy, planning and doctrine for joint operations, mobilization and industrial preparedness. Four pilot elective courses in creativity were offered during Academic Year 1981-82. The courses open to both NWC and ICAF students at the Fort McNair campus were--"Creative Thought: American Literature and Warfare" (NDU), a literature survey course; "Creativity and Innovation" (NWC), a philosophical approach; and "Creativity: Concepts and Applications (ICAF), a management behavioral science approach. The fourth, "Creative Problem Solving," a practical application approach, was offered at the Armed Forces Staff College in Norfolk, Virginia. Although each College designed a unique course, the common focus was to develop new and useful thinking strategies for senior government executives and suggest ways to apply them in the public sector. For example, major topics in the ICAF course "Creativity: Concepts and Applications" included:

- Theoretical and cognitive constructs of the nature of the creative process, person and environment.

- Developing creative behavior with individual and group creative problem solving.

- Strategies for developing creativity within large bureaucratic organizations.

- Thoughts about creative leadership. (6, p. 2)

Feedback from the pilot courses was convincing: they were useful and should be continued.[2] General Pustay further agreed that the concepts should be included in the Executive Skills Development portion of the curriculum at both ICAF and NWC for 1982-83 academic year. Then Lieutenant Colonel Thomas S. Myerchin, U.S. Army, who had developed ICAF's management-oriented creativity elective course was given the job of designing two periods of instruction. The seminar entitled "Creativity: Concepts and Applications" was included in the Academic Year 1982-83 Executive Skills Development program and presented to separate ICAF and NWC seminar groups. Lieutenant Colonel Daniel B. Chapla, U.S. Marine Corps, assisted Myerchin with designing and presenting the proposed instruction to the ICAF faculty during its summer 1982 off-site development retreat. The package included feedback from the Kirton Adaption-Innovation Inventory, i.e., interpretation of the concept of individual styles in problem-solving and decision making and how these concepts could be useful, and demonstrations of brainstorming, Synectics, and Kepner-Tregoe approaches to small group problem-solving.

Among other initiatives General Pustay directed in 1982-83 were new instruction in information management systems and personal computers as aids for decision analysis.

A NEW LEADER: EMPHASIS ON CREATIVITY CONTINUED

Army Lieutenant General Richard D. Lawrence became National Defense University's fourth President on 30 September 1983. A few weeks later he played host to a symposium on creativity called "The Creativity and Innovation in Bureaucracy Symposium." More than 285 attendees from government, academia and research activities heard speakers from the field of creativity introduce the topic of creative, innovative thinking in the Federal bureaucracy. Other speakers and panelists continued the discussions attempting to identify characteristics and practices within military and defense-related organizations which help and inhibit creative thinking and action.[3]

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[2] All four elective courses in creativity were offered again in 1982-83 and 1983-84. Neither the NDU literature survey course nor the NWC philosophy course were offered in 1984-85 because the teaching faculty members departed. The ICAF elective "Creativity: Concepts and Implementation" was taught in 1984-85 and is scheduled to be offered in 1985-86.

THE FUTURE: CREATIVITY IN A SYSTEMS PERSPECTIVE

The unifying concept for the National Defense University curriculum is a systems approach to problem solving and decisionmaking. More an implied approach in past curricula, the systems perspective will be explicitly treated in Academic Year 1985-1986.[4] Creativity and creative thinking have been found not only useful but essential in the systems approach. Like other study fields, creativity does not receive in-depth treatment; but the students are given a conceptual framework which can be developed and applied throughout the year to complement rational decisionmaking skills. Creativity will remain part of the Executive Skills Development Program at the National Defense University.

APPENDIX 1

NATIONAL DEFENSE UNIVERSITY MISSION AND STUDENT PROFILE

Mission

To ensure excellence in professional military education and research in the essential elements of national security.

Students

Military officers of Colonel/Captain and Lieutenant Colonel/Commander rank from all services.

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[3] The symposium proceedings, composed of an executive summary and edited transcripts of all the presentations, are to be published in June 1985 by National Defense University Press. The three lead-off speakers were Dr. Edward de Bono (by telephone), Dr. David P. Campbell, Dr. Karl Albrecht. Other panelists and presenters were Dr. Sidney J. Parnes, Dr. Elliott Jaques, Mr. Richard Harriman, Dr. Samuel P. Huntington, Dr. George Quester, Ambassador Robert Komer, Honorable James Woolsey, Honorable Robert M. Kimmitt, Mr. Robert Rosenfeld, Mr. Max Singer, Professor Frederick C. Thayer, Dr. David W. Bray, Lieutenant Colonel Jack Thorpe, Mr. Boyd Alexander, Dr. Clinton Kelly, Colonel L. Neale Cosby. Luncheon speaker was Honorable Morris K. Udall and dinner speaker was Mr. Albert Chipego.

[4] See APPENDIX 2 OUTLINE (TENTATIVE) EXECUTIVE SKILLS DEVELOPMENT (1985-1986) for an annotated listing of subjects to be presented.

Civilian government executives of GM/GS-15 and higher levels from all departments and agencies.

Class Size	Class of 1985*
Industrial College of the Armed Forces	209
National War College	170

Student Affiliation	Class of 1985*
Army	27%
Air Force	27%
Navy	16%
Marine Corps	6%
Coast Guard	1%
Civilians	22%

Student's Prior Educational Achievements	Class of 1985*
Doctorate	6%
Masters	69%
Baccalaureate	26%
Associate	0
No degree	0

Average Student Age	42

*Class of 1985 is a representative sample. The average graduating class sizes from 1977-1985 were: ICAF 212, NWC 158

APPENDIX 2

OUTLINE (TENTATIVE) FOR EXECUTIVE SKILLS DEVELOPMENT (1985-1986)

INTRODUCTION

Lecture and Seminar: The Systems View

-- Describe the systems concept as related to national security decisionmaking and insure a firm grasp of the systems approach to problem solving.

Seminar: Typical Encounters

-- A role-playing exercise in a case study dealing with U.S. policy in Central America. Students represent various agencies, points of view and personality types. They receive no guidance except to set the exercise in a National Security Council meeting to develop a position for U.S. policy toward Central America. Confrontation conflict and stalemate develop among students. A short critique highlights problems of group decisionmaking and points out the following sessions will address these factors and refer to the exercise experiences.

PERSONAL FACTORS, INDIVIDUAL ASSESSMENTS AND TECHNIQUES

Lecture and Seminar: Ethics

Seminar: Values

Seminar: The Strength Deployment Inventory (SDI)

-- Feedback interpretation and discussion of principles

Lecture and Seminar: The Myers-Briggs Type Inventory (MBTI)

-- Feedback, interpretation and discussion of principles

Seminar: Creative and Critical Thinking

-- Feedback from the Kirton Adaption-Innovation Inventory (KAI and discussion of concepts of creativity and identifying and overcoming blocks to creative thinking

Lecture: Health, Fitness and Nutrition

Seminar: Stress and Its Effects

Lecture and Seminar: Negotiations

Seminar: Decisionmaking in Small Groups and Policy Implementation

-- Managing conflict and agreement in a group setting

Seminar: Decisionmaking Techniques

-- Introduction to Creative Problem Solving

INTEGRATIVE PRACTICAL EXERCISE

Seminar: A new case study dealing with U.S. Policy in the Middle East. Students again play-roles in the NSC setting to demonstrate that the conceptual model developed in the phase is useful for decisionmaking in complex situations.

SUMMARY

Executive Skills Development is composed of 4 lecture periods (6 hours) and 16 seminar periods (24 hours) for a total of 20 periods (30 hours) of instructional time.

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"ACCOUNTABLE THINK TIME: AN EXECUTIVE FUNCTION"

HAROLD R. MC ALINDON, PRESIDENT

DEVELOPMENT ASSOCIATES

Our minds constitute the greatest source of hope for the future. In his management classic, Tough-Minded Management, Joe Batten describes management as "the dynamic interaction of human minds." More and more organizations are recognizing the vast untapped potential in the mental powers of their executives. The future will severely test our free enterprise system. Inflation, productivity, unemployment and innovation are our adversaries. The best thinking of our best minds will be required to effectively cope with these and future problems.

Applied thought, in general, is one of our nation's greatest untapped strengths. Improving the thinking ability of executives, specifically, is vitally important because they set standards, allocate resources, establish priorities and create the climate in which people work. Releasing the thinking ability of management will improve our free enterprise system as nothing else. Ultimately, their thinking abilities determine the success or failure of any organization.

Whether we realize it or not, we are living in an organization society. How well our organizations perform, ultimately, determines how well we perform socially and economically as a nation. Productivity and the quality of our life will be determined by the quality of our thinking.

Rod McKuen in his book, The Power Bright and Shining, reflects "Free enterprise, the path of those with talent to make something out of nothing, built the highways, and the trucks to travel down them. It hooked the light switch to the bulb and made the back room laboratory where the bulb was built. Yet, if Edison came through the crowd today what doorways would be open to him? How would he have fared? Surely, there are Mozarts in the crowd, Einsteins and Nightingales too, but bureaucracy is busy with its building blocks, making mazes thick as Mondays, trapping talent in its tracks, retarding minds before each channel, each canal has had the chance to let a stream of thought flow through it." Enlightened executives are working hard to develop structures, climates and opportunities to prevent this nightmare.

Two of the most important priorities of a business executive are to "think" and "to concentrate on priorities." In reality, these two functions (thinking and setting priorities) are inseparable. Without "thinking" we cannot effectively concentrate on priorities because we don't even know what our priorities are or what they should be. In large measure, the level of his or her personal success will be determined by how well an executive does these two things. The contribution he or she will make to the organization and ultimately the success of his or her business are also directly related to thought processes.

The Human Mind

Thinking is not an academic exercise that can be limited to schools, colleges, universities and the like. Thinking is a part of every person's daily life, but what kind of thinking is taking place?

Effective executives understand that there are many different kinds of thinking.

Just to name a few: analytical thinking, logical thinking, positive thinking, negative thinking, creative thinking, short-range thinking and long-range thinking. Each has its place and contribution. However, unless the right kind of thinking process is applied to an issue, the end results will be distorted. For example, in responding to a crisis, analytical rather than long-range thinking is required. On the other hand, long-range thinking might be appropriate when considering the future impact of current decisions.

Unfortunately, most of our education and experience teaches us "what to think" rather than "how to think." As a result, much of our creative potential has been unexploited. Far too many good ideas die a premature death. Loss of productivity, a stale climate, a sagging economy and boring jobs for people are all directly or indirectly effected by this rigormortus. Far too many executives are taught how to solve problems rather than how to seek opportunities. With a problem we look for a solution. With an opportunity we look for benefits. Edward De Bono, the eminent professor at Oxford and Harvard, stated that "there are few people who could invent the wheel today if it hadn't already been invented." I agree with him.

The human mind and its potential has been a major area of discussion for a long time. Quotes about human potential are almost as old as the human race itself.

James Allen says, "We become what we think."

Albert Einstein says, "There is no extreme to which a person will not go to avoid thinking."

Earl Nightingale says that, "thinking is the only function that distinguishes a human from a horse or a pig."

Abraham Maslow says, "People tend to see all problems as a nail if their only tool is a hammer."

And Henry Thoreau reminds us that, "man's capacity has never been measured. We should not judge what we can or cannot do by any precedents because so little has been tried."

In the last fifty years, startling advances in technology have added greatly to our standard of living, our productivity capacity and potential, and the prospects for a positive future. The challenge before us now is to add the power of the mind to the promise of our technology.

From a functional standpoint, our mental capacities can be simplified as follows:

1. Absorptive - the ability to observe and to apply attention.
2. Rententive - the ability to memorize and to recall.
3. Reasoning - the ability to analyze and judge.
4. Creative - the ability to visualize, to foresee and to generate ideas.

Electronic brains and computers now have all of these capacities, except the creative function and it is highly unlikely that there will ever be a machine capable of creativity. This is what makes the creative executive such an irreplaceable resource. Creativity, however, is not the only or total answer. We must be able to identify and apply the appropriate mental capacity spontaneously to the myriad of situations as they occur.

The Individual

Group thinking stimulation, challenge, inspiration and transforming are excellent tools to create solutions and opportunities. However, thinking must still be promoted and developed on an individual basis. The largest group is still a group of individuals and the quality level will represent the combined quality of the individual minds. This is why the ability to think in the appropriate mode as an individual is so vitally important. Thinking can be improved by education. Thinking can be taught.

A Thinking Course For Executives

In the Mini-Course on Thinking that I conduct, I point out the various types of thought processes all of us use at one time or another. For example, as I mentioned earlier, we could think long-range, short-range, negatively, positively, analytically, tegically, creatively, technically, in-depth, superficially and many other ways. Each method has a specific focus. For example:

Positive Thinking: Looking only for the "good" or "strength" aspects of something.

Negative Thinking: Playing the role of devil's advocate. Looking for the potential negative consequences of something.

Short-range Thinking: Looking only for the immediate results of something.

Long-range Thinking: Considering the advantages and disadvantages from a more projected perspective.

Strategic Thinking: Mapping out the specific action steps and issues to accomplish something.

Creative Thinking: Brainstorming all the possibilities of an idea.

Analytical Thinking: Considering the "why" of activities and results.

The application of the correct thought process to the issue at hand is fundamental to the value and effectiveness of our mental effort. If an immediate problem calls for a solution within a short period of time, a brainstorming session, or a long-range planning session would be totally useless. Obviously, at a later date it might be very logical to look for creative ways to prevent the problem entirely or plan on ways to minimize the possibility of a reoccurence. It may have been inappropriate to fiddle while Rome burned, but there is still value in studying the theory of hydraulics. The ability to understand and apply the right kind of mental effort is an executive skill that can be learned and improved rapidly with substantial results. Many organizations have had exciting results from the establishment of "accountable think time" programs as a result of taking the mini-course on Thinking.

Responsibility for Thinking

Accountable think time is a process to encourage organizations and individuals to develop and apply more of their mental powers. To assure that your organization's best thinking is constantly being focused on opportunity and key issues is to put the odds in favor of success overwhelmingly in your favor. Opportunity is created where intelligent thought and purpose meet. Here is how some organizations have applied this concept:

How To Do It

1. Each year, as part of the budget preparation or the planning process, key individuals in the organization are allocated "accountable think time." By this, we mean that they are expected to spend a predetermined amount of time thinking. A list of key issues is prepared to assure that thinking is directed toward issues and strategies that are consistent with the organization's mission, philosophy and goals. They know that they will have to report on the "output" of this time, but the output will be communicated after six months or a year rather than after every session. This maximizes the "pressure" to produce valuable results.

2. Variations of this concept have been equally effective. One approach that has been consistently effective begins with the compiling of a list of issues "worth thinking about." Some organizations choose to identify "problem areas" that require major thinking. Others focus on "opportunity" or "new market development." The main thing is to identify key issue areas, positive or negative, that will produce significant benefits to the organization.

3. After the list of key issues is generated, separate categories are set up for "current problem areas," "opportunities." There should be a proper balance between the areas of concentration that focus on "problem solving" and those that are "entrepreneurial" in nature.

4. Each individual then selects from those items that are of particular interest to him or her. When people think about things that interest them or utilize a special skill or talent that they have, the results are generally more positive and the morale and motivation of the individual improves.

5. "Think time" is then scheduled for each person. It is okay to be flexible. However, there will probably be a tendency to let other "priorities" become more important than your think time. This is deadly and should be avoided. This is a matter of discipline and recognizing the ultimate payoff.

6. Think time should be at least "two hours" in length. A half-day I think is ideal. To get the mind really working requires a period of relaxation and concentration. In the executive's busy schedule, there is almost no time that is free of interruption. In addition, a preoccupation with problems and demands make it difficult to focus on a specific problem or opportunity.

7. The conditions for thinking should be set by each individual. Some people think best in silence. Others prefer music. I like to think while jogging. The quality of the thought is the important thing. Usually a relaxed, informal environment is best. No one is permitted to ask, "how are they coming," etc. Some people require longer incubation periods than others. The "thinkers," however, can ask questions or volunteer information as they wish.

8. At the end of the year, each individual is asked to present their best thinking on the subject that they chose to explore. Again, it is stressed that this is not a competitive exercise. The presentation is accompanied by a written report.

9. After the presentations have been made, those that seem to have continued potential are followed up on and incorporated into the plan and budget for the coming year. Possibly a task force is initiated to explore the idea in detail and in depth.

10. A simple report format is used to make sure that the key points, strengths/weaknesses and cost/benefits, rather than the literary aspect, are the important characteristics. Clerical support should be provided so that the "mental" effort is the main focus of the process.

11. In order to maximize synergy, all members of the management team should be aware of the projects that each individual is working on. This way, they can refer to books, articles and ideas to one another.

The Benefits

1. This process helps the organization identify its best thinkers. If the organization believes that its top executives should be thinkers, this would help to identify some future talent.

2. This process encourages innovation rather than the status-quo. Any organization without a conscious renewal effort will stagnate.

3. This process brings the organization's best thinking into focus on key issues affecting the organization. The more positive you can maintain your posture, the better off you will be. Even reactionary management, however, can benefit from the thought process.

4. This process will help people grow. Growth is mind development. The more people's minds are exercised and stretched, the more the organization's potential is developed.

Summary:

In good and bad times one result is fairly predictable. The people and the organizations that know how to create good, new ideas and turn them into market realities are the ones with the best chance of prospering. IBM, one of the world's great companies, has had as its slogan, "THINK", for decades. The relationship between its thinking and its success is no coincidence. Much of the written material about the technology of the future has assigned to it the fruition of our nation's dreams of prosperity. Our hope seems to have been placed in the mechanical world of machines and computers. This is a grave mistake. The quality of our future will be determined by the quality of our minds. H. G. Wells once said, "History is a race between education and catastrophe." If we can educate our minds to be positive, constructive, affirming tools of social and economic progress, social and economics progress will be ours.

The Results (Samples)

An International Service Corporation: This concept produced more than 200 new products and services for potential market expansion.

A Trade Association: One session with senior officers was used to support the planning process and expand the "thought processes" of the planning team.

A Consumer Products Organization: This approach was used with each division head to help create a common thought base for the organization.

A Financial Institution: This concept was used with a two-dimensional focus. One focus was on opportunity. The other was on problem solving. The approach was equally effective in each area.

An Insurance Company: This process was used as a climate builder to help organization's employees focus on and think through issues. It reduced the "personality" orientation it originally had.

A Hospital: Department heads participated in the thinking course as part of an over-all innovation program.

Others: Management Consulting Group, University Executives, Church (Adult Education Program).

While specific dollar amounts are not available for publication (at the request of clients), a major auto manufacturer once volunteered these estimated financial figures attributed to the impact of thought--or the lack of it.

		Cost
1.	Ideas not thought of sooner	4 - 8 Million Dollars
2.	Ideas thought of too late to do any good	3 - 4 Million Dollars
3.	Ideas not developed to their full potential	3 - 4 Million Dollars
4.	Ideas not thought of at all	5 - 14 Million Dollars
		15 - 30 Million Dollars

Possibly the most important pay-off, however, is the fact that the quality of our thought (our minds) ultimately determines the quality of our lives. The pay-off has been in large measure with the overall "personal" effectiveness of the people involved in the programs.

The Future

The futurist is already a part of the management scene as speakers, authors and consultants. The World Future Society has been a very exciting organization for a long time. More recently the futurist has been found on the corporate scene in operations, planning and education.

Recently, The American Banker carried a major article by Mr. Michael Sullivan of First Union Bank, Charlotte, NC, entitled, "The Corporate Visionary", as a major role. The role of the corporate visionary, according to Mr. Sullivan, is to "force management away from an emphasis on current profits, short-range financial plans and economic forecasts and to begin visualizing the organization of the future."

There needs to be a little more of the corporate visionary in each of us.

K) RESOURCES FOR NEW PRODUCT DEVELOPMENT

"NEW PRODUCT SCREENING AS AN ANALYTIC HIERARCHY PROCESS"

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ABSTRACT

This paper discusses the new product and service development process. Initial attention is focused on sources and creativity-enhancing methods for generating new product ideas. New product screening approaches are examined including approaches that require input from management as well as prospective consumers. Two new micro-computer based approaches are introduced, Creactivator™ and Expert Choice**. A detail case discussion of Expert Choice is provided.

INTRODUCTION

Victor Hugo has stated that "nothing in this world is so powerful as an idea whose time has come." It is not an overstatement to suggest that the life blood of entrepreneurships and small businesses is the generation of viable new product/service ideas. Ideas are the key resource of an entrepreneurship, and like any resource (i.e., land, labor, capital, managerial talent) they warrant the application of sound management proceedures. A recent Booze, Allen, and Hamilton study indicates that companies surveyed expect forty percent of their profits over the next five years will come from new products (many that do not exist now).(1)

The purpose of this paper is twofold. First, discussion is devoted to the new product* development process. Attention will be focused on sources and methods for generating new product ideas. Second, new product idea screening approaches will be examined - approaches that require input from management as well as prospective consumers. The concept of micro-computer based, marketing decision support systems will be introduced here along with a relatively new tool - The Analytic Hierarchy Process.

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* For the remainder of this paper, the word 'product' will be used to encompass both products and services.

** Expert Choice is a registered trademark of Decision Support Software, Inc., McLean Va.

Before delving into the specifics of the paper it is appropriate to pose a few questions about your firm's marketing and product development efforts. The questions are:

- Were your last two product introductions successful?
- Who was responsible for these products at the idea level?
- Think about your most successful new product - your biggest commercial success.
  - -What was the source of the new product idea?
  - -How long did it take you to develop it?
  - -Was the product concept or market-tested prior to introduction?
- Now think about your latest and "hotest" product idea (note: if you do not have one, you had better read the rest of this paper with great speed!)
  - -Does your comapny make a similar product already?
  - -Do you sell to a related market already?
  - -What was the source of this product idea?
  - -Will you concept or market test this idea?
  - -How much promotion will be required to make the product go?
  - -Is brand name important?
  - -Will the decision to buy be made by one or multiple persons?
  - -How many versions of the product do you envison producing for different market segments?
- Will the product need service, repair, and updating?
- What do you think the life expectancy of this product will be?

The purpose of the above questions is to make several points. First, the innovation process is closely aligned with the marketing process (generating ideas, and transforming ideas into marketable products). Both of these processes are heavily linked to the market and customer needs assessment. Further, sources of new product ideas are critical--they need to be analyzed and managed.

In order to set the stage for our discussion of the new product development process, it is purposeful to operationally define what is meant by "new". Newness and innovation are certainly matters of degree. Researchers concerned with the adoption process and the diffusion of innovations distinguish among three types of offerings:(2)

- Discontinuous Innovations - A "once in a lifetime" breakthrough; often requires substantial behavior modification on the part of the consumer/user, (e.g. microwave ovens, personal home computers, solar energy.)

- Dynamically Continuous Innovations - The underlying generic product may have been around for a while but substantial changes in technology and performance features, functionality, etc. have taken place (e.g. audio cassette tapedecks vs. reel-to-reel, inexpensive, digital watches, frozen food entrees combining high quality and taste vs. T.V. dinners, electronic spreadsheet software.)
- Continuous Innovations - Changes rendered in products here are minor and often are built in as part of an overall product differentiation strategy over the product's life cycle (e.g. changing the scent of a household cleaning product, a new food additive.)

In addition to the above conceptualization, the label "new product" can, in fact, fit any of the characteristics below:

- New to the world products
- New product lines
- Additions to exisiting product lines
- Improvements to exisiting products
- Repositionings
- Cost reductions(3)

The dilemma that new product development poses for most businesses is that innovation is required for continued success and survival but there are high risk and failure rates associated with innovation. Ford's Edsel, Xerox's computers, the French Concorde, IBM's PC jr, and DuPont's Corfam, are but a few of the famous failure cases in the hi-tech arena. The incidence of failure is even higher in the consumer package goods arena. Hopkins and Bailey's (1971) study of new-products showed failure rates of 40 percent for consumer products, 20 percent for industrial, and 18 percent for services.(4)

Why do new products fail? Kotler offers the following list of potential causes:

- Shortage of important new product ideas in certain areas
- Fragmented markets
- Societal and governmental restraints
- Costliness of new product development process
- Capital shortages
- Shorter growth periods for successful products(5)

STAGES OF THE NEW PRODUCT DEVELOPMENT PROCESS

The journey that a new product idea takes from its genesis to full scale commercialization is depicted in Figure 1. The concern in this paper is principally with the idea generation and screening phases. Firms are improving their batting averages over the idea-to-commercialization route. Booze, Allen, and Hamilton report that in 1968 it took 58 ideas to produce a single commercial entry versus only seven ideas per entry in their most recent 1981 study.(6) The primary reasons behind this improved efficiency ratio may be cost and improved screening of ideas. The same study indicated that over one thousand dollars was involved in the management attention devoted to every product idea considered..

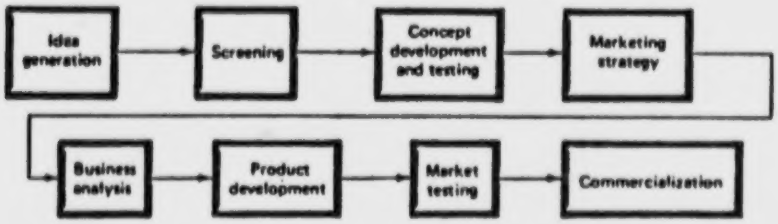
Sources of New Product Ideas

In Search of Excellence is an effective testimonial to the importance of organizational arrangements to cultivate and manage new product ideas. 3M and other firms evidence "Skunkworks" - a part of the informal corporate culture that allows people the freedom (and "borrowed" resources) to push along innovative projects. The same best-selling book also illustrates the key role that "Corporate Chariots of Fire" and consumer's play in ideas and their involvement to commercialization. IBM's crash project to produce their personal computer is matched by other firms who have a product champion (a mover and shaker) to move the product idea through the development cycle. Stu Leonard's grocery store in Norwalk, Connecticut is a shining example of the importance of listening to consumer's "why don'tcha" ideas through personal chats, organized focus groups and a customer suggestion box.

Although it is true that the real source of many new products lies with basic research in the lab, consumer inputs can be effectively channelled to R&D efforts. Studies of new industrial products have shown that "customer active product development" often exceed the sales effectiveness of "manufacturer active product development."(7) Many possibilities exist for repeat sales to customers who perceive that a certain supplier is responsive to their inputs.

FIGURE 1

NEW PRODUCT DEVELOPMENT PROCESS IN THE 1980'S



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Customers are not the only source of new product ideas, however. Careful attention should be given to all the sources noted below:(8)

Customers

- Informal listening and monitoring
- Formal listening - surveys, complaint handling process, focus groups.

Competition

- Intelligence information - formally monitor new product activities of key competitors' new product activities (VisiCorp should have seen Lotus coming with their 1-2-3 product)
- Utilize trade sources (shows, publications), your salespeople, comparative shopping for retailer's
- Buy theirs, take them apart, and build better one's (Volvo buys all diesel engines on the market, runs their own and competitors side-by-side continuously until the engines crash - who's do you think lasts longer?)

Distribution Channels

- Distributors can generate suggestions for a completely new product because of their close contact and familiarity with customers. Hallmark's independent retailers suggested that the firm introduce party supplies, candles, books, gifts, etc. to combat declining card sales. It worked out so well that Hallmark got into the retail business itself!

Company Sales Force

- A key source of ideas - particularly for industrial products
- Need to develop a formalized feedback system for information from manufacturer's reps or your own salespeople
- Be careful not to overload salespeople with call reports and forms to complete. (However, why not develop a reward system for distributors (discussed above) and sales representatives to recognize the ideas they provide?)

Government

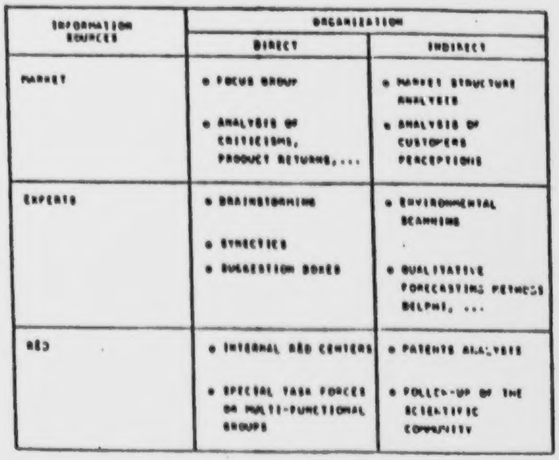
- Follow announcements for government (local, state of Federal) requests for proposals, particularly those requesting state of the art technology.
- Follow regulations - regulations (e.g., OSHA, ERISA, etc.) are often the source of new product needs (e.g., consultants, interpretation, training, products) in order for individuals or organizations to comply with the laws. For example, a state newly enacting auto emissions inspection laws would be a source of sales for firms distributing testing equipment to inspection stations.

Methods for Generating New Product Ideas

Choffray and Dorey (1983) have classified methods of new product idea generation by their source and organization as shown in Figure 2.

FIGURE 2

METHODS OF NEW PRODUCT IDEA GENERATION



INFORMATION SOURCES	ORGANIZATION	
	DIRECT	INDIRECT
MARKET	• FOCUS GROUP • ANALYSIS OF CRITICISMS, PRODUCT RETURNS,...	• MARKET STRUCTURE ANALYSIS • ANALYSIS OF CUSTOMERS PERCEPTIONS
EXPERTS	• BRAINSTORMING • SYNECTICS • SUGGESTION BOXES	• ENVIRONMENTAL SCANNING • QUALITATIVE FORECASTING METHODS DELPHI, ...
R&D	• INTERNAL R&D CENTERS • SPECIAL TASK FORCES OR MULTI-FUNCTIONAL GROUPS	• PATENTS ANALYSIS • FOLLOW-UP OF THE SCIENTIFIC COMMUNITY

A comprehensive listing of a variety of creativity-enhancing methods includes:(9)

- Focus groups
- Attribute listing
- Brainstorming
- Problem inventory analysis
- Synectics
- Microcomputer-based techniques combining above methods

Participants in these methodologies can include any of the sources (e.g., customers, salesperson, distributors) previously discussed (with the likely exception of competitors).

A brief dicussion of each of these methods follows:

Focus Groups (group method)

- A qualitative research technique heavily used by marketers since the 1950's
- Involve a session with six to eight participants led by a skilled moderator
- An excellent device to generate lists of ideas as well as to provide an initial evluation of ideas and concepts

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Attribute Listing (individual or group method)

- The purpose of this device is to break down the key features of an idea or product (this can be done by survey or focus group approaches)
- The attributes can be modified, regrouped, or combined to develop new products from different "bundles" of features
- Even a simple product like a screwdriver can be modified, adapted, rearranged, magnified, minified, reversed, rearranged, or combined

Brainstorming (group)

- Purpose is to foster idea generation by elimination of all sources of criticism
- The more ideas the better
- Group session organization involves the following aspects:
    - -one leader
    - -five to seven people working in a group
    - -diversity of backgrounds and personal experiences represented
    - -participants represent similar levels in the organization's hierarchy
    - -45 minutes to one hour of production
    - -maximum number of ideas-quality is encouraged
    - -criticism and evaluation is absolutely ruled out and freewheeling is welcomed
    - -combining ideas with others is encouraged (piggy-backing)

Problem Inventory Analysis (individual or group)

- consumers are asked for problems that they encounter in using a particular product or product category
- Focus is placed on the seriousness, incidence, and cost of remedying problems
- Example - Kodak movie projector
    - -time consuming to rewind film - auto-rewind
    - -scene is too small on the screen - zoom lens
    - -too heavy/bulky - miniaturize
- Example - food consumption - Figure 3 provides an analysis of problems associated with food. A related illustration is the "solutions"s provided by fast-food resturants and in-home cooking technology (microwave oven with memory, and food/packaging technology for the problems faced by a family involved in a hectic, time-compressed lifestyle (nobody eats on schedule, preferences for types of food among family members vary widely)

Synectics

- o An answer to problems with brainstorming sessions (sessions end too quickly, sessions lack sufficient number of perspectives)
- o Goal is to define the problem very broadly - almost esoterically - and make the strange familiar or the familiar strange
- o The key to synectics appraoch is the use of metaphor
- o Four metaphors are used to produce analogies that are forced to fit a problem:
  - -Direct Analogy: direct application of parallel facts or technology
  - -Personal Analogy: personal identification with part or all of the problem and its solution
  - -Symbolic Analogy: assessing the essence and meaning of the key words associated with the problem
  - -Fantasy Analogy:
- o Example - A specific problem was to design a vapor proof method of closing suits worn by workers who handled high-powered fuels. The problem definition given a group was the general notion of closure. This led to the groups's images of closure mechanisms, (zippers, velcro, mouths, birds nest, sticky tape, birds nests). Closure ideas wer exhausted at the first level. Then the problem was further refined for the group prior to more dialogue and solutions. A third iteration dealt with the specific problem, and at this point participant's solutions had been primed by the first two levels.

FIGURE 3

A PROBLEM INVENTORY ANALYSIS WITH FOOD

PHYSIOLOGICAL	SENSORY	ACTIVITIES	BUYING USAGE	PSYCHOLOGICAL/SOCIAL
A.WEIGHT .FATTENING .EMPTY CALORIES	A.TASTE .BITTER .BLAND .SALTY	A.MEAL PLANNING .FORGET .GET TIRED OF IT	A.PORTABILITY .EAT AWAY FROM HOME .TAKE LUNCH	A.SERVE TO COMPANY .WOULD NOT SERVE TO GUESTS .TOO MUCH LAST MINUTE PREPARATION
B.HUNGER ..FILLING .STILL HUNGRY AFTER EATING	B.APPEARANCE .COLOR .UNAPPETIZING SHAPE	B.STORAGE .RUN OUT .PACKAGE WOULD NOT FIT	B.PORTIONS .NOT ENOUGH IN PACKAGE .CREATES LEFTOVERS	B.EATING ALONE .TOO MUCH EFFORT TO COOK FOR ONESELF .DEPRESSING WHEN PREPARED FOR JUST ONE
C.THIRST .DOES NOT QUENCH .MAKES ONE THIRSTY	C.CONSISTENCY/TEXTURE .TOUGH .DRY .GREASY	C.PREPARATION .TOO MUCH TROUBLE .TOO MANY POTS AND .PANS .NEVER TURNS OUTS	C.AVAILABILITY .OUT OF SEASON .NOT IN SUPERMARKET	C.SELF-IMAGE .MADE BY A LAZY COOK .NOT SERVED BY A GOOD MOTHER
D.HEALTH .INDIGESTION .BAD FOR TEETH .KEEPS ONE AWAKE .ACIDITY		D.COOKING .BURNS .STICKS	D.SPOILAGE .GETS MOLDY .GOES SOUR	
		E.CLEANING .MAKES A MESS IN OVEN .SMELLS IN REFRIGERATOR	E.COST .EXPENSIVE .TAKES EXPENSIVE INGREDIENTS	

Source: Edward M. Tauber, "Discovering New Product Opportunities With Problem Inventory Analysis." Journal of Marketing, (Jan. 1975), p. 69

After conducting a series of focus group sessions with average dog owners, breeders and showers at dog shows, and veterinarians about dog food and dog feeding practices, you arrive at six ideas for new product concepts. The concepts and their descriptions are shown in Exhibit 3. You are excited about the ideas as some appear to be real breakthroughs in the doq food market and would not cannibalize sales of your existing dry and semi-moist lines.

The first task you undertake is to look at your available information. The essential questions are:

1. What are the major criteria for dog food purchases that are used by each attitudinal segment?
2. How would each of the segments evaluate the different products?

Your research budget has been exhausted with the focus groups and you decide to try a new approach called (AHP). Your intent is to utilize as much of your focus group, internal and external data as possible in evaluating the ideas. You are particularly interested in evaluating segmentation possibilities for the potential products as well as examining each idea's overall market appeal.

The next step in your analysis is to examine the feasibility of your exploring the new ideas in concept testing phases. General Foods' laboratory staff has indicated that each product was technically feasible and each was of the same order of magnitude with respect to development costs if you decide to submit any of the concepts to a prototype production and testing program.

Another AHP application ocurs to you. Why not analyze each of the new products according to a list of qualitative screening criteria that reflect your company's present competencies and goals? You arrive at the following criteria:

Product Criteria
Product uniqueness
Patent position
Production facilities fit
Technological know-how
Impact of Changing economic conditions

Market Criteria
Market size
Market growth potential
Level of customer need
Effect on Existing product line
Distribution fit/requirements
Promotion requirements
Competitive advantage

generate thoughts about solutions. It should be noted that the ideas are also subjected to the comparison process discussed above. Ideas may be traded off based upon the presumed preferences of the segments for each alternative with respect to each criterion. Thus, like the Creactivator approach, a form of seeding and screening is built into the model regarding how well an idea "fits" the atributes desired by a segment. It is also possible to have the AHP model built in focus groups constituting individuals who represent the various segments. This approach incorporates greater reality in that the AHP model reflects their needs and preferences. Alternatively, the AHP model can be constructed based on survey research evidence or focus group concept testing results. An illustration of AHP as an idea screening device is discussed below.

General Foods Search for a Star in the Dog Food Market (12)

There is no doubt that pet food is "big business." Historical growth of shipments of pet food in the U.S. have exceeded human food. Further, the total pet food market is expected to expand dollar-wise because of a series of demographic and sociological factors highlighted below:

- Decreasing family size, more single person households, a high divorce rate, and a growing retired population, have elevated pets to surrogate-child status in many households
- High crime rates and concerns for personal security have led to increased acquisition of large breeds of dogs as protectors; whereas the popularity of multi-family dwellings, (less single unit housing) higher income and education levels have pushed growth in smaller, expensive pedigreed dogs

Research conducted by General Foods and studies in the psychological literature indicate that some pet owners are anthropomorphic - that is, they project human traits to their pets - a mental set that undoubtedly influences dog feeding patterns. An example is General Good's Gaines Burger's product shaped similarly in size to a good old McDonald burger.

Assume that you are a General Foods product manager that hopes to capitalize on the potential growth in the dog food business with a new product introduction. You have access to a General Foods research study that provides information about:

- Demographic and attitude segments
- Attitudes toward dogs and dog food feeding (Exhibit 1)

You also obtain a copy of a Simmons (SMRB) report which indicates the importance of selected factors in choice of dog food. (Exhibit 2) evaluations to be incorporated into the model. Indeed, the quality of the model depends to a large degree on the skill with which decision criteria are weighted relative to each other and to the overall goal. Better judgements will result in better models.

After identifying the elements at level 1 and their weighted importance relative to the goal (level 0), the process of comparison is repeated for levels 1 and 2. The elements of level 2 of the hierarchy model (the alternatives for cars) are ranked by comparing each car to the others according to each of the criteria established at level 1.

When the relationships expressed in the hierarchy scheme are combined, or "synthesized," each of the alternative choices (cars) has a cumulative weight which expresses the degree to which it fits all of the criteria relative to the goal. The alternative with the largest score is the one that best meets the criteria.

If the weighting (comparison) and modeling process leaves you a bit uneasy, be aware that Expert ChoiceTM is a user-friendly software package which enables a decision maker to build an AHP model in a straightforward manner. It guides you through the construction, synthesis and manipulation of the model.

AHP's Application to the Idea Generation Process

AHP can be viewed as a combination of the following creativity enhancing methodologies:

Focus Groups
Attribute listing
Brainstorming - used in group sessions
Problem analysis
Trade-off analysis
Environmental scanning

The basic concept is to have individuals independently, or in group sessions, develop an AHP model which may encompass:

- Environmental scenarios - economic conditions, technological uncertainties, etc.
- Actors - market segments of consumers
- Criteria - product/service attributes
- Alternatives - new product ideas

After developing the model with judgements concerning the importance of segments, likelihood of scenarios, and attribute importance, the participants are asked to brainstorm new product ideas that "fit" the attribute needs of segments under various environmental states. This last step is very similar to the approach used in problem and attribute listing analysis where the process of breaking up a problem or application is expected to

Choffray suggests that Creactivator be employed in groups with three to five participants who represent similar levels in the organization's hierarchy, but with different backgrounds and experiences A minimum of two groups in competition are needed and continuity of the process overtime is needed to build grop synergy and efficiency. Choffray has utilized the approach in a number of consulting situations in Europe. He suggests that when compared to traditional brainstorming sessions with seven to nine participants involved in several one hour sessions that 100 ideas (± 30) can be anticipated. Creactivator, involving groups of three to five persons in competition with two 45 minute sessions is capable of generating 300 ideas (± 80). In conclusion, the major benefits of the Creactivator approach appear to be:

- Substantial potential for the improvement of the productivity of creative sessions
- A computerized data base of the portfolio of new product ideas is produced (not likely to get lost like ideas stored on scrap pieces of paper)
- Idea screening is accomplished with a fast, reliable, and objective evaluation procedure
- Immediate results are obtained

The Analytic Hierarchy Process

The Analytic Hierarchy Process (AHP) was developed by Thomas Saaty at the Wharton School.(11) A very "user-friendly" software package called "Expert Choice" is available to implement the AHP methodology. The principal applications of AHP to date have centered on decision-making situations involving a model in the form of a hierarchy pyramid. The model incorporates the decision criteria and the alternatives. The decision maker weighs each criterion relative to the importance of the other criteria at the same level, and weigh lower levels of the hierarchy with respect to the level directly above them. A simple hierarchial model of a car buying decision is depicted below:

Level 0   Goal: SELECT A CAR
Level 1   Criteria: COMFORT   ECONOMY   COST   STYLE   PRESTIGE

Level 2   Alternatives: MERCEDES   280-ZX   CORVETTE   PORCHE

In the illustration above, selecting a car is the goal at level 0. Level 1 reflects the criteria important to the decision maker in choosing a car. After identifying the criteria, one must decide how important each factor is relative to the goal. This step in the process is accomplished by comparing pairs of elements at each level of the hierarchy (i.e. Is comfort equally, less or more important than economy" Is comfort more important than cost?). Each factor is thus weighted according to its relative importance to arriving at a decision. The judgements used to compare these decision elements allow subjective

DECISION SUPPORT TOOLS FOR IDEA GENERATION

Two personal computer-based approaches have been developed which offer substantial potential to improve idea generation processes within companies. "Creactivator" is the comprehensive software package developed by John Marie Choffray that has its roots in creativity theory and small group interaction processes. "Expert Choice" is a software decision support device that enables individuals or groups to interactively perform the attribute listing, and problem analysis approaches discussed in the previous section.

Creactivator(10)

Choffray's approach utilizes group brainstorming techniques and adds delphi feedback, learning and innovation theory concepts. The basic principles underlying this approach are:

- Idea accumulation - a data base of new product ideas is created
- Cross-fertilization - the creative process is aided when there is heterogenity of backgrounds and knowledge bases
- Conditioning - the creative domain may be enlarged through the "injection" of "stretching ideas and concepts" or "creativity enhancing seeds" (C.E.S.)
- Motivation is enhanced by the use of several creative groups, competing with each other for a reward

The major steps in utilizing the Creativator software are:

- Define the domain of the creative problem at hand (e.g., elicit new writing instruments) using environmental scanning, external experts, synectics, or morphological analysis
- Development of an initial data base of "creativity enhancing seeds" (e.g., laser pens, drawing with a mouse)
- Idea generation in several parallel groups, using microcomputers
- The interactive software stores ideas generated by each group; conditioning with C.E.S. occurs upon group request when idea generation slows down (new C.E.S. appear on CRT at a time interval determined by the group)
- Crossfertilization is achieved when the output from one group serves as the C.E.S. input for another group
- The new product idea data bases can also be evaluated interactively by each group applying criteria to assess the probability of success
- Group productivity measures are computed by the software to determine the "winner" of the idea generation sessions

Financial Criteria
Profit contribution
Effect on cash flow
Payback
Return on Investment

A partial analytical hierarchy (shown in Figure 4) is constructed consisting of 5 levels.

FIGURE 4
AHP MODEL FOR DOG FOOD IDEA SCREENING

Level 0: Goal — Evaluate the Dog Food Ideas

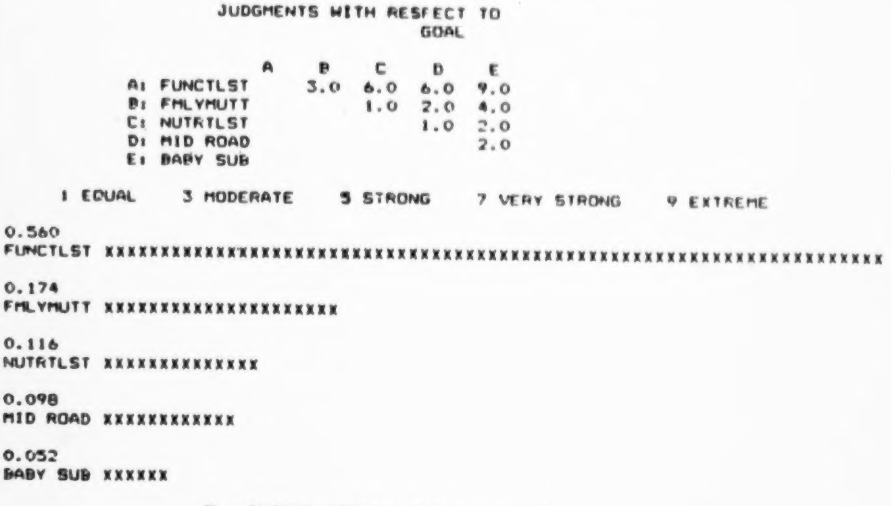
Level 1: Segments

Functionalist	Family Mutt	Baby Substitue	Nutritionalist	Middle of of the Road
(.560)	(.174)	(.052)	(.116)	(.098)

Level 2: Criteria
Level 3: Sub Criteria
Level 4: Ideas

Your first step in the AHP model is to evaluate the relative importance of each of the psychographic segments. You could do this qualitatively using Expert Choice's verbal comparison mode but, you also have the flexibility to make the necessary pairwise comparisons with objective, numerical data. You decide to use the data given in Exhibit I on % of commercial feedings by each segment. Figure 5 below shows the Expert Choice screen for the numerical comparisons.

FIGURE 5

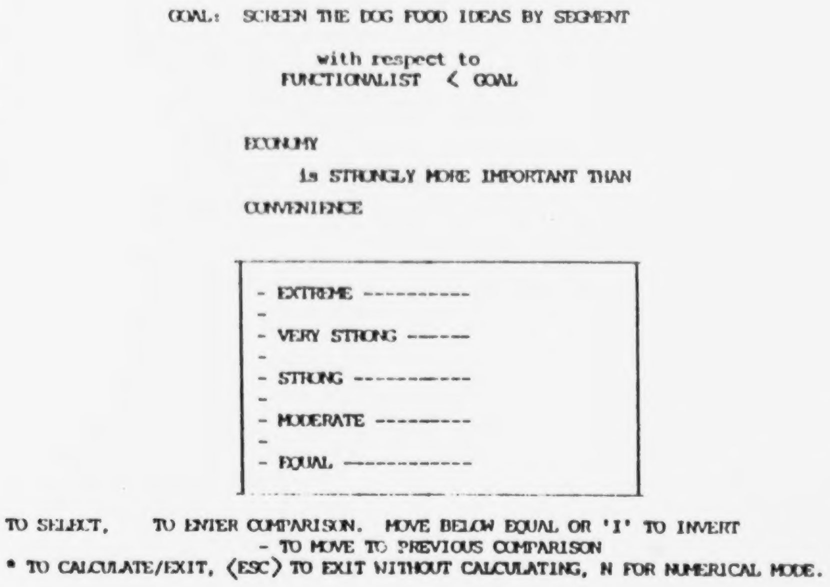


```
                JUDGMENTS WITH RESFECT TO
                                 GOAL

                      A     B     C     D     E
          A: FUNCTLST      3.0   6.0   6.0   9.0
          B: FMLYMUTT            1.0   2.0   4.0
          C: NUTRTLST                  1.0   2.0
          D: MID ROAD                        2.0
          E: BABY SUB

     1 EQUAL    3 MODERATE    5 STRONG    7 VERY STRONG    9 EXTREME

0.560
FUNCTLST XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

0.174
FMLYMUTT XXXXXXXXXXXXXXXXXXXXX

0.116
NUTRTLST XXXXXXXXXXXXXX

0.098
MID ROAD XXXXXXXXXXXX

0.052
BABY SUB XXXXXX

                    INCONSISTENCY RATIO = 0.015
```

Notice that the matrix shows the relative importance of each segment with respect to each other segment. For example, the entry 3.0 in the upper left hand corner is a response to the question "How important is the functionalist segment compared to the family mutt segment?" The data indicates that the relative importance of functionalist's feedings (55%) over family mutts' (2%) is 2.75 (55%/20%) or 3.0, rounded. You enter all the numerical comparisons in Expert Choice (inverse importance comparisons, where a segment is of less importance than another, are merely given recripocals of the ratios). AHP uses your comparative judgements to perform some complex matrix algebra calculations to synthesize your importance data, and arrive at a set of utilities for the segments. The graphic output of Expert Choice is displayed in Figure 5 and as utility weights for Level 1 in Figure 4.

The next step is to perform an evaluation of the relative importance of each criterion by each segment. If survey research data were available, standard crosstabulations would provide you with some of the information you desire here, but lacking this input, you use Expert Choice's verbal mode to trade off the criteria segment by segment using a nine-point importance scale (shown in figure 6) ranging from equal importance of two criteria to extreme importance of one attribute over another.

Figure 6



GOAL: SCREEN THE DOG FOOD IDEAS BY SEGMENT

with respect to
FUNCTIONALIST < GOAL

ECONOMY
is STRONGLY MORE IMPORTANT THAN
CONVENIENCE

- EXTREME ----------
-
- VERY STRONG -----
-
- STRONG -----------
-
- MODERATE ---------
-
- EQUAL ------------

TO SELECT, TO ENTER COMPARISON. MOVE BELOW EQUAL OR 'I' TO INVERT
- TO MOVE TO PREVIOUS COMPARISON
* TO CALCULATE/EXIT, <ESC> TO EXIT WITHOUT CALCULATING, N FOR NUMERICAL MODE.

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Note that the questions asked here are to rate the pairwise importance of all the attributes. For example, for the functionalist segment, you believe that economy is very strongly more important than convenience for functionalists, so you enter a '7'. After performing all the necessary pairwise comparisons, Expert Choice again does a synthesis which is shown in Figure 7.

Figure 7

```
                 JUDGMENTS WITH RESFECT TO
                           FUNCTLST < GOAL

                  A     B     C     D     E     F
   A: ECONOMY          7.0   1.0   6.0   5.0   5.0
   B: CONVEN'T               3.0   5.0   5.0   5.0
   C: NUTHEALH                     1.0   3.0   5.0
   D: AFFEAL                             1.0   4.0
   E: MINUNFLS                                 1.0
   F: REFUTATN

   1 EQUAL    3 MODERATE    5 STRONG    7 VERY STRONG    9 EXTREME

0.445
ECONOMY  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

0.229
CONVEN'T XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

0.157
NUTHEALH XXXXXXXXXXXXXXXXXXXXXXXXX

0.080
AFFEAL   XXXXXXXXXXXX

0.051
MINUNPLS XXXXXXXX

0.039
REFUTATN XXXXXX

                 INCONSISTENCY RATIO = 0.169
```

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In a similar fashion, your next step is to evaluate the relative importance of the subcriteria for each parent criterion. Again, this is done for each segment in the verbal mode such as displayed in Figure 6. Results are shown for all the subcriteria for the functionalist segment in Figure 8.

FIGURE 8

```
                                   O
                                   '
                          ---------'--------------------
                                   '         '    '    '    '

                              ----------
                             'FUNCTLST'      O    O    O    O
                             '        '
                             ' L 0.560'
                             ' G 0.560'
                             '        '
                              ---------
                                   '
   ------------------------------------------------------------------------
   '           '           '           '           '           '
  ---------   ---------   ---------   ---------   ---------   ---------
 'APPEAL   ' 'NUTHEALH' 'MINUNFLS' 'ECONOMY  ' 'REPUTATN' 'CONVEN'T'
 '         ' '        ' '        ' '         ' '        ' '        '
 ' L 0.080' ' L 0.157' ' L 0.051' ' L 0.445' ' L 0.039' ' L 0.229'
 ' G 0.045' ' G 0.088' ' G 0.028' ' G 0.249' ' G 0.022' ' G 0.128'
 '         ' '        ' '        ' '         ' '        ' '        '
  ---------   ---------   ---------   ---------   ---------   ---------
 '-TO DOG    '-GENHEALH  '-DOG ODOR  '-SLICES    '-SLICES    '-CONTAINR
 '  L 0.143  '  L 0.167  '  L 0.125  '  L 0.073  '  L 0.110  '  L 0.500
 '  G 0.006  '  G 0.015  '  G 0.004  '  G 0.018  '  G 0.002  '  G 0.064
 '-TO FEEDR  '-TEETHG&M  '-FOOD O&T  '-CONTROL   '-CONTROL   '-PRODUCT
 '  L 0.714  '  L 0.167  '  L 0.875  '  L 0.528  '  L 0.456  '  L 0.500
 '  G 0.032  '  G 0.015  '  G 0.025  '  G 0.131  '  G 0.010  '  G 0.064
 '-HUM.PREF  '-APEARNCE              '-DOG DAYS  '-DOG DAYS
 '  L 0.143  '  L 0.667              '  L 0.045  '  L 0.110
 '  G 0.006  '  G 0.059              '  G 0.011  '  G 0.002
                                     '-WT WATCH  '-WT WATCH
```

The last and most critical step is to estimate judgmentally the relative preferences for each idea concerning the subcriteria or criteria (when no subcriteria are employed as with the "reputation" criteria). Naturally, these preference comparisons must be done on a segment by segment basis. For example, how much would the functionalist segment prefer control over slices with respect to the appeal to dog criterion? Figure 9 displays an example of this set of preference comparisons for functionalists. So the reader has an opportunity to see the same results for another segment. Figure 9 also shows the idea comparisons for the baby substitute niche.

A final synthesis is performed for the entire mode. Figures 10 and 11 partially display this output.

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FIGURE 9

```
                    JUDGMENTS WITH RESPECT TO
                         APPEAL   < FUNCTLST < GOAL

                         A     B     C
         A: TO DOG            (5.0)  1.0
         B: TO FEEDR                 5.0
         C: HUM.PREF

    1 EQUAL     3 MODERATE     5 STRONG     7 VERY STRONG     9 EXTREME

0.143
TO DOG    XXXXXXXXXXXXXX

0.714
TO FEEDR  XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

0.143
HUM.PREF  XXXXXXXXXXXXXX

                    INCONSISTENCY RATIO = 0.000
```

```
                    JUDGMENTS WITH RESPECT TO
                      TO DOG   < APPEAL   < FUNCTLST < GOAL

                         A     B     C     D     E     F
         A: SLICES            (3.0)  1.0   1.0   1.0   1.0
         B: CONTROL                  4.0   3.0   4.0   5.0
         C: DOG DAYS                       1.0  (3.0)  1.0
         D: WT WATCH                             1.0   4.0
         E: FRZDRIED                                   4.0
         F: FRESH

    1 EQUAL     3 MODERATE     5 STRONG     7 VERY STRONG     9 EXTREME

0.115
SLICES    XXXXXXXXXXXXXXXXXXXX

0.407
CONTROL   XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

 0.091
 DOG DAYS XXXXXXXXXXXXXXXX

 0.147
 WT WATCH XXXXXXXXXXXXXXXXXXXXXXXXX

 0.171
 FRZDRIED XXXXXXXXXXXXXXXXXXXXXXXXXXXXX

 0.069
 FRESH    XXXXXXXXXXXX

                    INCONSISTENCY RATIO = 0.056
```

```
                    JUDGMENTS WITH RESPECT TO
                      TO DOG   < APPEAL   < BABY SUB < GOAL

                         A     B     C     D     E     F
         A: SLICES             5.0   7.0   6.0   3.0  (3.0)
         B: CONTROL                  5.0   4.0  (5.0) (6.0)
         C: DOG DAYS                      (5.0) (5.0) (7.0)
         D: WT WATCH                            (3.0) (6.0)
         E: FRZDRIED                                  (5.0)
         F: FRESH

    1 EQUAL     3 MODERATE     5 STRONG     7 VERY STRONG     9 EXTREME

0.233
SLICES    XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

0.081
CONTROL   XXXXXXXXXXXXX

0.026
DOG DAYS XXXX

0.050
WT WATCH XXXXXXXX

0.161
FRZDRIED XXXXXXXXXXXXXXXXXXXXXXXXXX

0.427
FRESH     XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

                    INCONSISTENCY RATIO = 0.153
```

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FIGURE 10

```
                    RATE ATTRACTIVENESS OF IDEAS BY SEGMENT
                             TALLY FOR LEAF NODES

LEVEL 1        LEVEL 2        LEVEL 3        LEVEL 4        LEVEL 5
-------        -------        -------        -------        -------


FUNCTLTY =0.560
               ECONOMY  =0.249
.              .              CONTROL  =0.131
.              .              FRZDRIED =0.034
.              .              WT WATCH =0.025
.              .              SLICES   =0.018
.              .              DOG DAYS =0.011
.              .              FRESH    =0.010


.              .
.              .
.              CONVEN'T =0.128
.                             CONTAINR =0.064
.              .                             WT WATCH =0.021
.              .              .              CONTROL  =0.019
.              .              .              DOG DAYS =0.014
.              .              .              FRZDRIED =0.005
.              .              .              FRESH    =0.004
.              .              .              SLICES   =0.003
.              .              PRODUCT  =0.064
.              .                             CONTROL  =0.027
.              .              .              WT WATCH =0.023
.              .              .              FRESH    =0.004
.              .              .              SLICES   =0.003
.              .              .              DOG DAYS =0.003
.              .              .              FRZDRIED =0.003
.              NUTHEALH =0.088
.                             APEARNCE =0.059
.              .                             CONTROL  =0.024
.              .              .              DOG DAYS =0.011
.              .              .              WT WATCH =0.007
.              .              .              SLICES   =0.006
.              .              .              FRZDRIED =0.006
.              .              .              FRESH    =0.005
.              .              GENHEALH =0.015
.              .                             CONTROL  =0.008
.              .              .              DOG DAYS =0.003
.              .              .              SLICES   =0.001
.              .              .              WT WATCH =0.001
.              .              .              FRZDRIED =0.001
.              .              TEETHGUM =0.015
.              .                             CONTROL  =0.005
.              .              .              FRZDRIED =0.005
.              .              .              FRESH    =0.001
.              .              .              DOG DAYS =0.001
.              .              .              SLICES   =0.001
.              .              .              WT WATCH =0.001
.              APPEAL   =0.045
.                             TO FEEDR =0.032
.              .                             CONTROL  =0.014
.              .              .              WT WATCH =0.008
.              .              .              SLICES   =0.003
.              .              .              FRZDRIED =0.003
.              .              .              DOG DAYS =0.002
.              .              .              FRESH    =0.002


.              .              TO DOG   =0.006
.              .                             CONTROL  =0.003
.              .              .              FRZDRIED =0.001
.              .              .              WT WATCH =0.001
.              .              .              SLICES   =0.001
.              .              .              DOG DAYS =0.001
.              .              .              FRESH    =0.000
.              .              HUM.PREF =0.006
.              .                             SLICES   =0.001
.              .              .              CONTROL  =0.001
.              .              .              DOG DAYS =0.001
.              .              .              WT WATCH =0.001
.              .              .              FRZDRIED =0.001
.              .              .              FRESH    =0.001
.              MINUNPLS =0.028
.                             FOOD O&T =0.025
.              .                             CONTROL  =0.012
.              .              .              FRZDRIED =0.006
.              .              .              WT WATCH =0.003
.              .              .              SLICES   =0.002
.              .              .              FRESH    =0.002
.              .              .              DOG DAYS =0.002
.              .              DOG DOOR =0.004
.              .                             SLICES   =0.001
.              .              .              CONTROL  =0.001
.              .              .              DOG DAYS =0.001
.              .              .              WT WATCH =0.001
.              .              .              FRZDRIED =0.001
.              .              .              FRESH    =0.001
.              REPUTATN =0.022
.                             CONTROL  =0.010
.              .              SLICES   =0.002
.              .              DOG DAYS =0.002
.              .              WT WATCH =0.002
.              .              FRZDRIED =0.002
                              FRESH    =0.002
```

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FIGURE 11

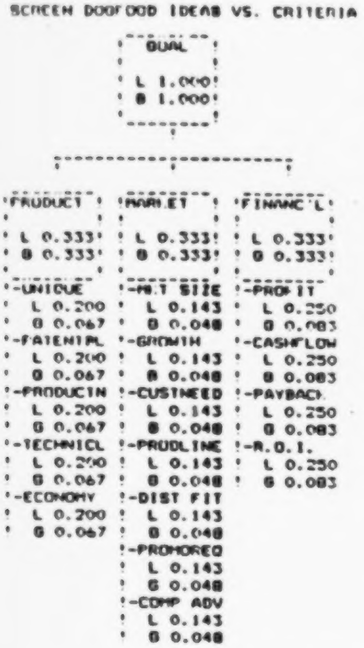
```
                RATE ATTRACTIVENESS OF IDEAS BY SEGMENT

                     LEAF NODES  SORTED BY PRIORITY

                   OVERALL INCONSISTENCY INDEX =  0.08

CONTROL  0.351 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
WT WATCH 0.175 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
FRIDRIED 0.151 XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
DOG DAYS 0.117 XXXXXXXXXXXXXXXXXXXXXXX
SLICES   0.105 XXXXXXXXXXXXXXXXXXXXX
FRESH    0.102 XXXXXXXXXXXXXXXXXXXX


         =====
         1.000
```

Note that Expert Choice sorts the evaluations so that results are given in order of importance and preference. Thus, the functionalist segment is the most important, the economy criterion is most important to this egment, and control is the most preferred idea on this criterion. This data aids considerably in fitting the ideas to segments and examining possible appeals to employ. The bar chart output summarizes the ideas' evalutations across the spectrum of segments as mass market product possibilities (Figure 11). Control is most preferable followed by weight watcher, freeze dried, slices and fresh.

Expert Choice also allows some interesting opportunities to play "what if" with the results. For example, how would the picture change if the importance of the baby substitute segment segment were understated because the survey results used were dated? What if the criteria shifted in importance due to an environmental factor, e.g. low priced generics growth during recession conditions?

The microcomputer techniques discussed here also provide a systematic method of evaluating new product ideas from a management perspective. An example of an AHP model developed to evaluate the dog food ideas is shown in Figure 12.

FIGURE 12



```
SCREEN DOGFOOD IDEAS VS. CRITERIA

                 ----------
                ! GOAL     !
                !          !
                ! L 1.000  !
                ! G 1.000  !
                !          !
                 ----------
                     !
      -------------------------------
      !              !              !
 ----------     ----------     ----------
!PRODUCT   !   !MARKET    !   !FINANC'L  !
!          !   !          !   !          !
! L 0.333  !   ! L 0.333  !   ! L 0.333  !
! G 0.333  !   ! G 0.333  !   ! G 0.333  !
!          !   !          !   !          !
 ----------     ----------     ----------
!-UNIQUE       !-MKT SIZE     !-PROFIT
!  L 0.200     !  L 0.143     !  L 0.250
!  G 0.067     !  G 0.048     !  G 0.083
!-PATENTBL     !-GROWTH       !-CASHFLOW
!  L 0.200     !  L 0.143     !  L 0.250
!  G 0.067     !  G 0.048     !  G 0.083
!-PRODUCIN     !-CUSTNEED     !-PAYBACK
!  L 0.200     !  L 0.143     !  L 0.250
!  G 0.067     !  G 0.048     !  G 0.083
!-TECHNICL     !-PRODLINE     !-R.O.I.
!  L 0.200     !  L 0.143     !  L 0.250
!  G 0.067     !  G 0.048     !  G 0.083
!-ECONOMY      !-DIST FIT
!  L 0.200     !  L 0.143
!  G 0.067     !  G 0.048
               !-PROMOREQ
               !  L 0.143
               !  G 0.048
               !-COMP ADV
               !  L 0.143
               !  G 0.048
```

In this case the firm's screening criteria replace the customer's. Notice that the three major parent criteria are product, financial, and marketing considerations. Each parent criterion is decomposed into a series of subcriteria. The screening could be performed at any level in the product development process - with qualitative, judgmental data after idea generation or with a mixture of quantitative and qualitative inputs in the concept testing through test marketing phases. AHP has the flexibility to work with both types of data.

In summary, it is felt that microcomputer-based techniques such as Creactivator and Expert Choice offer great potential as decision support for the new product idea generation and screening process. Both techniques are menu-driven and can be used by session participants or moderators with little to no knowledge of personal computers.

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Exhibit 1

Attitudinal Segmentation Summary Dog Food Market

Name	*Functionalist*	*Family Mutt*	*Baby Substitute*	*Nutritionalists*	*Middle of Road*
SIZE:					
% of Dog Owners	40%	25%	10%	13%	12%
% of Commercial Dog Food Feedings	55%	20%	5%	10%	10%
DEMOGRAPHY: (Note these are tendencies based upon a given group's profile relative to the other groups)	*Multiple dog ownership;* Children present; lower income/C, D counties	*Own one dog; Average size;* Children present; lower income/C, D counties	*Own one very small,* older dog; Kids not present; higher income, urban	*Multiple dog* ownership; *largest dogs;* low probability of kids; Eastern, urban, higher income	No distinctive characteristics
ATTITUDES: (Note these are tendencies based upon a given group's profile relative to other groups)	Dogs outdoor/ hearty; eat anything, no bother; Little attachment to dog; Interested in ownership benefits; *Average interest in nutrition;* Housewife not involved with dog.	*Little interest in dog; Dog playful,* no bother; *Below average menu acceptance;* Interest in *owner-benefits; Least interest* in *nutrition;* Housewife not involved, dog is for kids.	*Dog fragile, indoor animal; above average attachment to dog;* Heavily involved in choice of food; Dog finicky eater, great desire to *prepare what dog wants.*	Very personally attached to dog; Dog belongs to housewife; *Most interested in nutrition; Least interested in cost, food flexibility; Virile dog*	
TYPES USED.	Basically meal feeders—very little use of other types	Heavy meal usage but also atypically high use of low priced canned	*High degree of canned use,* relatively *little of meal;* High relative use of soft-moist and biscuits.	*Most feedings meal*—relatively strong *high priced canned* and biscuit use	Feed meal and canned to about same extent; High relative use of soft-moist
% OF TOTAL FEEDINGS GIVEN TO EACH TYPE	Soft-Moist 2.0% Meal 88.2 *Canned* *8.9* High 1.2 Parity 1.8 Economy 5.9 Biscuits 0.9	Soft-Moist 6.4% Meal 63.7 *Canned* *28.4* High 3.2 Parity 8.2 Economy 17.0 Biscuits 1.5	Soft-Moist 7.8% Meal 59.0 *Canned* *27.1* High 10.2 Parity 7.4 Economy 9.5 Biscuits 6.1	Soft-Moist 25.4% Meal 22.7 *Canned* *44.9* High 14.9 Parity 16.9 Economy 13.1 Biscuits 7.0	Soft-Moist 41.0% Meal 43.7 *Canned* *37.7* High 6.7 Parity 12.5 Economy 18.5 Biscuits 4.8
LOCATION: POST REGION	Stronger than average in Central & South; very weak in West.	Stronger than average in East; very weak in West.	Stronger than average in West; relatively weak in East	Very strong in South & East; very weak in West.	Stronger than average in East and Central; Western South

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EXHIBIT 2

Importance of Selected Factors in Choice of Dog Food

	Very Important	Fairly Important	Not Important
Nutritional and Vitamin Content of Food	73.7%	17.8%	8.3%
Your Feeling as to What Your Dog Would like	73.5	19.7	6.6
The Amount of Pure Meat	64.1	24.6	11.0
The Odor the Food Has	55.4	21.4	22.9
Convenience in Serving the Food	48.0	27.6	24.2
Flavors Available	42.3	29.7	27.8
Appearance of the Food	36.1	29.7	34.0
The Brand Name	34.8	22.3	42.7
Cost of Food	29.5	34.8	35.5

Source: Life Sub-Sample of Simmons, 1967.

EXHIBIT 3

Control. This new product would be a balanced-nutrition sauce or gravy meant to be added to table scraps. It would do to table scraps what Instant Breakfast does to a glass of milk. Each serving provides complete balanced nutrition and high-protein energy. Mixed with warm water or cold water, and poured over table scraps, it gives the dog every basic and supplementary nutrient and vitamin needed for health and vitality. It can be used with any food. In three delicious gravy flavors (beef, chicken, and liver) that will make any meal more appetizing to the dog. Available in powdered form. In multipacket boxes.

Prime Slices. This product would be a new form of all-meat dog food. Meat plus other needed nutrients in a digestible casing. Large enough to feed a large dog for two days, medium-sized dog for four days, small dog for a week. The casing is marked with colored lines to indicate proper serving according to dog size... blue for large dog, yellow for medium-sized dog, white for small dog. Simply slice with a knife a proper line for a complete serving. Plastic cover slips over exposed area so remaining portion can be stored in refrigerator.

Dog Days. This product would be the first hot-weather thirst drink for dogs. A pleasant tasting liquid on the order of Gatorade, this product would satisfy a dog's thirst even faster than water. Moreover, it would do what water alone can't. It would replace the natural salts, body sugars and high-protein nutrients a dog loses through perspiration and activity. It would help the dog to safely maintain higher activity levels in hot weather. Available in six-packs of four ounce cans.

Weight Watcher. This dog food would be designed as a complete self-sustaining feeding program for the inactive dog (i.e., the apartment dog, the city dog, the suburban dog who has opportunity for only relatively short, sporadic periods of excerise, the spayed dog, etc.), Weight Watcher would be formulated of scientifically metered amounts of high quality, easily assimilated protein, supplementary nutrients, reduced cereal bulk and noncaloric filler. Weight Watcher is designed to satisfy the dog's complete hunger, answer his total nutritional needs - but provide only half the caloric content of standard dog foods. Weight Watcher may be used either as a maintenance regimen, a pregnancy regimen (in combination with a puppy-type food), or as a reducing diet.

Freeze Dried. This new product would be the first freeze-dried food for dogs. A complete, balanced nutrition, high-protein dog food, this product would offer more fresh meat flavor satisfaction and more natural nutrition than any dog food ever developed. Add water, and the fresh meat flavor, the natural meat texture, and subtlety of diced vegetables and fresh milk all come flooding back. Fresher tasting. More natural tasting. More naturally nutritious than even the most expensive canned or semimoist diets. Moreover, because this product is freeze-dried, it's far more portable, and far easier to carry food from the supermarket. A five-pound bag makes thirty pounds of food. A full month's supply of meals that stores conveniently and compactly right on your pantry shelf. This product would be available in handled boxes. At a premium price.

Fresh. This new product would be the first 100 percent fresh dog food, so fresh, it's not even sold in a supermarket. It's delivered to your door with your milk. Formulated of ground fresh meat, fresh milk products and cottage cheese solids, it's better for your dog because it's packed fresh each day for your dog. Unlike canned dog foods that undergo substantial flavor adulterations and nutritional loss as they age on the grocer's shelf, this product assures guaranteed flavor consistency and maximum nutrition. What's more, since this product is delivered with your milk, there are no heavy cans for you to lug home from the supermarket, packed in one-pound tubs. Priced at slightly premium levels to store-bought dog foods.

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"THE SMALL BUSINESS INNOVATION RESEARCH PROGRAM: A NEW RESOURCE FOR PRODUCT DEVELOPMENT"

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ABSTRACT
THE SMALL BUSINESS INNOVATION RESEARCH PROGRAM A NEW RESOURCE FOR SMALL BUSINESS

The purpose of this paper is to discuss the Small Business Innovation Research Program as a new resource for product development for small business. The paper is written from the authors' viewpoint and discusses the program in terms of national need; legislative requirements; the role of the SBA in implementing the program; those aspects of the program which make it a new resource; and finally, the results of the program to date.

The premise of the paper is twofold. First, it addresses why the rationale for establishing a program of this nature is different from the rationale for establishing other small business acquisition programs and secondly, it addresses why the program requirements of SBIR are necessarily different from traditional small business acquisition requirements.

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INTRODUCTION

At the beginning of FY 1983 a new program came into being, that in my view, provided small businesses with an exceptional resource for new product development. The program is the Small Business Innovation Research (SBIR) program and its ultimate purpose is to allow small businesses more opportunities to participate in Federally sponsored research and development, and bring the results of this research and development to the marketplace.

The Federal Government over the last 10 years has provided the majority of research and development dollars expended in this country. Of this amount, the vast majority has been spent with large businesses, universities, government laboratories, and nonprofit organizations. Only a small, quite disproportionate share, has been awarded to small business. Yet, numerous studies have concluded that small firms are more innovative than large firms; small firms bring more innovations to the marketplace faster than large firms, and finally, small firms conduct research and development at a lower cost than large businesses.

From a programmatic viewpoint, I maintain that small businesses may benefit more from research and development dollars than from dollars available through traditional programs. Traditional small business programs have generally provided small business with financial assistance through operating capital and procurement assistance through set aside programs that allow small firms to provide the Federal Government with products already commercially available. Research and development dollars provided through Federal funding agreements, allow firms to experience the "hard knocks" of business life, yet, it also insulates and incubates the business to allow it sufficient opportunity to develop a new product. In effect, Federal research and development dollars allow a firm to receive revenues which help to keep it in business while simultaneously, developing a new or better product. Once the product is sufficiently developed to be put on the market, the firm is, to an extent, a step ahead of established peer competition, due to the better attributes of the new product.

The topic of this paper concerns, "New Resources." A new resource implies and indicates something new, something different and something progressive. A new resource must provide something better and more opportunities than previously provided. Most importantly, a new resource must be capable of assisting in the achievement of an ultimate goal better than existing forms of assistance. If it does not provide more than previously available, then it is not new; it is only repackaged.

The SBIR program is a new resource. It is new, it is different and it provides more of the necessary ingredients for a firm to grow and progress than presently available.

Small Business Participation in Federal Research and Development -- The Need For a New Resource

The major objective of P.L. 97-219, The Small Business Innovation Development Act, is to direct part of this nation's research and development resources where those resources will have the greatest impact. The rationale was simply: more research and development dollars to small businesses would mean more innovations, more new products on the market, more new jobs and more economic productivity. In passing P.L. 97-219, the Congress concluded that:

(1) technological innovation creates jobs, increases productivity, competition, and economic growth, and is a valuable counterforce to inflation and the United States balance-of-payments deficit;

(2) while small business is the principal source of significant innovations in the Nation, the vast majority of federally funded research and development is conducted by large businesses, universities, and government laboratories; and

(3) small businesses are among the most cost-effective performers of research and development and are particularly capable of developing research and development results into new products.

As a result of this knowledge, Congress determined that not only were small firms receiving less than a fair share of Federal research and development dollars; but further, it was necessary to provide small businesses with more Federal research and development opportunities; not solely for the good of small business, but for the good of the country.

However, SBIR goes further than providing solely R&D funding. Increased funding alone would not address the obstacles faced by small businesses in participating in Federal research and development. In addition to funding, a new process was needed that would facilitate and encourage small businesses to bring their talents and innovations to the Federal Government.

Recognizing the need for more funding and a new process, Congress mandated that set percentages of an agency's extramural research and development budget be spent with small business, and required the SBA to develop a new standardized and simplified solicitation process to enhance competitive participation by small businesses.

Within the guidelines required by Congress in the SBIDA, SBA developed a new acquisition process that is as important as the funding provided. It is this new process that provides the foundation for a new resource for product development.

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P.L. 97-219 - The Small Business Innovation Development Act

In July 1982, the President signed into law the Small Business Innovation Development Act (SBIDA). The law required the development of a Small Business Innovation Research Program that was to be implemented at the beginning of FY 1983 (October 1, 1982). It further required the SBA to develop, publish and disseminate by November 19, 1982 a Policy Directive for the conduct of the SBIR program. Congress specified that the purposes of the SBIDA was to:

o Stimulate technological innovation.

o Use small business to meet Federal research and development needs.

o Foster and encourage participation by minority and disadvantaged firms.

o Increase private sector commercialization of innovations from Federal research and development.

The SBIDA also required three basic things:

- It created an SBIR program in agencies with extramural research and development budgets of $100 million or more.

- Required the setting of goals for the award of research and development funding agreements to small business in agencies with research and development budgets in excess of $20 million.

- Required SBA to develop and implement a timely, standardized and simplified acquisition process for the SBIR program.

Agencies establishing an SBIR program were required to award an increasing percent of its extramural research and development budget to small business. Civilian agencies were to award up to 1.25% over a four-year period and the Department of Defense was to award 1.25% over a five-year period. Percentages to be awarded each year are:

	Civilian Agencies	Department of Defense
FY 83	.2%	.1%
FY 84	.6%	.3%
FY 85	1.0%	.5%
FY 86	1.25%	1.0%
FY 87	1.25%	1.25%

Total dollars awarded equalled $44.5 million in FY 83 and will approximate $500 million when the program is fully implemented in FY 87.

The SBIDA required the SBIR program to have a uniform process of three phases. During Phase I, small business respond to agency solicitations with proposals of a maximum of 25 pages. If successful, a firm could receive up to $50,000 for an approximate six-month period to demonstrate the scientific and technical merit and feasibility of the proposed idea.

During Phase II, which is available only to Phase I winners, firms may receive up to $500,000 to further develop the results of Phase I. Phase II may last up to two years and special consideration is given to those firms with a third party commitment for Phase III.

Phase III is for commercialization of the results of Phase I and Phase II. Phase III is funded with private dollars or other agency non-SBIR funds.

The law also directed certain responsibilities to SBA and the participating agencies. SBA's responsibilities include:

- The SBIR Policy Directive.
- An Information System and Outreach Responsibilities.
- Coordination of Agency Solicitation Schedules.
- Distribution of Pre-Solicitation Announcements.
- Survey and Monitor Agency SBIR Programs.
- Assist in Commercialization of SBIR Projects.
- Annual Reporting to the Senate and House Committees on Small Business.

Agency responsibilities include:

- Unilateral Selection of Technology Topics.
- Issue an SBIR Solicitation at least Annually.
- Unilateral Receipt and Evaluation of Proposals.
- Unilateral Selection of Awardees for SBIR Funding Agreements
- Administration of SBIR Funding (or delegate such authority to another agency)
- Make payments to SBIR recipients
- Annual Reports to the SBA and the Office of Science and Technology Policy.

The SBIR program is not funded with additional dollars added to agency budgets solely for award to small businesses. Instead, it is funded by requiring agencies to spend more of its R&D budget with small businesses and less with other organizations. To ensure that agencies would not decrease

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their present level of research and development awards to small businesses as a result of SBIR, the law further required agencies with a total research and development budget of $20 million or more to establish goals for awarding research and development funding agreements to small businesses. Such goals must at least be equal to the percent of the agency research and development budget awarded to small business in the immediately preceding fiscal year.

Finally, the SBIDA had a sunset clause that repeals the act at the end of FY 87. However, to ensure proper monitoring and evaluation of the program, Congress required that in addition to the SBA annual reports, the Office of Science and Technology in consultation with the Federal Coordinating Council for Science, Engineering and Research would independently survey and monitor all phases of the implementation and operation of SBIR programs including compliance with the expenditures of funds according to the law. The General Accounting Office was directed to report no later than five years after the enactment of the law on the implementation of and nature of research conducted under SBIR.

The SBIR Policy Directive - Implementing a New Resource.

The SBIR program is unlike other small business acquisition programs in numerous respects. SBIR is not solely a small business assistance program. It is an innovation and commercialization program first. Its goal, in short, is new innovations, commercialization and economic growth. It is a small business program second and it is perhaps only a small business program because small businesses are more capable of achieving the desired results than other organizations. This program gives preference to small business because of their talent and capabilities instead of their inabilities and/or limited opportunities.

Although SBIR is designed to assist the small business, it is also designed to assist the awarding agency. Small business benefits through R&D dollars and the development of a new product, while agencies benefit by having their R&D needs conducted at a lower cost. SBIR is not a spending program, it is an acquisition investment program. Because of these differences, it was necessary for the SBIR Policy Directive to encompass a totally new acquisition process.

The SBIR program from a functional standpoint accomplishes the following:

1. Sets aside a small percentage of Federal research and development dollars for award to small businesses;

2. Provides small businesses with a simple and standard process to participate in receiving those research and development dollars set aside;

3. Uses a methodology to take an idea from infancy and bring it to the marketplace.

To accomplish the above, Congress gave the SBA the responsibility with certain guidelines to design a program that would achieve its goal of new innovations on the marketplace. SBA did this and implemented it through the SBIR Policy Directive which governs the SBIR program of those agencies required to participate as a result of P.L. 97-219.

Through this Policy Directive, SBA requires a number of things designed to come as close as possible to ensuring that small businesses would provide Congress with its desired results. To accomplish this, SBA set upon a course in the Policy Directive different from other SBA programs, and different from all other Federal acquisition programs.

Based upon the percentages required by law, an approximate $500 million will be awarded to small businesses in FY 87. Although this amount would represent a very small percentage of total research and development dollars awarded, over 4000 SBIR awards would be provided to small businesses in FY 87 through the SBIR program.

The SBA SBIR Policy Directive includes some profound changes in the small business acquisition process and it is through these new changes that SBA has developed a new resource for small business that has unlimited potential. The following details those areas of the Policy Directive which make SBIR a new resource.

1. The SBIR Policy Directive, unlike other SBA acquisition programs, requires that a firm be small at the time of award instead of at the time of certification. This requirement allows individuals with an innovative proposal although employed elswhere, an opportunity to propose and determine if it is worthwhile to leave their present employment and form a small business. This regulation serves as an incentive for individuals to start a small business.

2. The SBIR Policy Directive required each participating agency to use a solicitation process that is the same as that of all other participating agencies. Each solicitation would have the same administrative format and requirement. Each proposal would have the same format and requirements and the evaluation criteria for all proposals would be the same. Thus, for the first time, small businesses have a standard process and requirements which eliminates having to deal with the voluminous regulations for each individual agency.

3. Each agency is required to evaluate proposals and make awards within six months from the due date of the proposals. This requirement forces agencies to have a review and award process that does not "string out" the proposing firm indefinitely.

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4. Agency topics are required to be definitive enough to clearly state the R&D needs of the agency, yet they are also broad to allow proposing firms flexibility in responding. This approach provides for several proposed solutions from small firms; thus the agency to obtain the greatest level of creativity and innovation possible.

5. The three-phased process is a "scientific methodology" designed to evaluate an idea, develop an innovation and bring the new innovation to the marketplace. Phase I is designed to evaluate the technical merit and scientific feasibility of the idea. If Phase I is successful, Phase I winners only may propose for Phase II to actually pursue the research and development. To encourage private sector commercialization of the results of Phase I and Phase II, those firms with a third party commitment for Phase III, receive special consideration during the Phase II evaluation process. Phase III is designed for commercial investment and cannot be funded with SBIR funds. It is intended that Phase III be funded with private dollars but may also be funded through an agency with production agreements or other research funding.

6. In Phase I, a firm may receive up to $50,000. During Phase II a firm may receive up to $500,000. By limiting awards to the above amounts, SBA consistent with legislative guidelines has allowed as many small businesses as possible to participate in receiving a share of the funds available.

7. The subcontracting limits for Phase I and Phase II require that the majority of the research and/or analytical effort will be conducted by the small firm receiving an award. Further, it is also required that the principal investigator be employed at least part-time by the winning firm throughout the length of the funding agreement. These requirements further ensure, that the small business actually perform the specified research and development.

8. The SBIR Policy Directive provides that technical data generated as a result of an SBIR award remains the property of the proposer and will not be released by the Federal Government for a period of two years. The government will receive a royalty-free license for use of such data at the end of the two year period, whether the data is patented or not. Proprietary information contained in proposals is also protected and treated in strict confidence to the extent provided by law. These protections consistent with guidelines contained in the law, make a strong effort to allow proposing small firms to retain all rights possible to enhance commercialization potential.

9. The Policy Directive requires that all proposals be evaluated on a competitive basis. Thus, the SBIR evaluation criteria is a competitive process allowing for only the best proposals to be selected for award.

10. Through the SBA SBIR Mailing List and the Pre-Solicitation Announcement, interested small firms are notified at the beginning of each fiscal year quarter of all information pertaining to agency SBIR solicitations. This information includes solicitation release and proposal due dates; agency solicitation topics and agency contacts for solicitation information. This information is designed to inform small businesses in a timely, direct and concise manner of all information relating to SBIR solicitations.

Results of a New Resource

Although it is too early to totally evaluate what effect SBIR has had in terms of developing new innovations, and bringing these innovations to market, there are some early results that may already prove the program to be very successful. First, SBIR accomplishes one goal in that it provides small business with a larger share of Federal R&D dollars. Secondly, Federal R&D dollars are being spent where evidence proves the investment will have the greatest return. Thirdly, SBIR, as evidence also proves, allows Federal R&D to be conducted at a lower cost than the cost for using organizations other than small business to perform Federal R&D.

Present data shows that for FY 83 and 84, over 2100 projects have been funded under SBIR which total more than $156 million. Further data also suggests that agencies participating in SBIR are more than satisfied with the proposals and R&D work conducted by small business. In FY 83, four agencies spent more than required dollars due to the high quality of proposals received from small business. In FY 84, six agencies also spent more for the same reason. Even further, some agencies, i.e. NASA, DOD, EPA, have funded projects that those agencies consider to be innovations and are almost ready for commercialization or at least ready to be put to use by the awarding agency.

Another result of SBIR concerns the increased number of small businesses now doing business with the Federal Government. Of all small firms participating in SBIR, approximately 80% of these firms did not perform work for the awarding agency during the last three fiscal years. During FY 84, of those companies receiving a Phase I award, over 85% had not received an SBIR award in FY 83 from the same agency.

Perhaps also, SBIR provides successful participants with the opportunity to not only provide government with a required product but consistent with the commercialization objective, it provides an opportunity for winning firms to develop new customers. The winning firms provide the government with the R&D required by the funding agreement. However, once the R&D is completed, the new innovation developed may in most instances be desired by the private market. At most, the intent is for new products developed as a result of SBIR to be commercialized in the private marketplace.

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Of the 686 FY 83 Phase I winners, 559 submitted proposals for Phase II awards. Of this 559, 60% succeeded in winning a Phase II award. If all 686 FY 83 winners had submitted a Phase II proposal, roughly 50% would have received a Phase II award. Although part of the reason for such a high success rate for Phase II is related to dollars available, a valid assumption can be made that this success rate is also related to the quality of R&D being conducted.

Finally, a short and long term effect of SBIR concerns the area of economic development. An increased amount of dollars flowing to a local economy generally serves as a benefit to that economy. In the short term, the geographical distribution of SBIR awards shows some states receiving as little as $50,000 up to $35,000,000 in new R&D dollars. In the long term, it can be expected that the value of some of these awards will multiply as a firm develops a product, hires new employees, and the business continues to grow. In short, the goal of economic development, is economic growth. Such growth is a realistic assumption as a result of SBIR awards.

Conclusion

The SBIR program in addition to encouraging new innovations, is an innovation in itself. It is a program with unlimited opportunities for small business to develop new products and it offers unlimited opportunities for this nation to achieve more economic growth.

SBIR as a program has already proven itself. Participating agencies appear are satisfied with the new acquition process and small businesses appear satisfied with the opportunities it provides. The program in two years of operations has developed an untarnished reputation and appears able to stand on its own merits without the politics associated with other programs.

In sum, although results relating to new products developed, employment growth in existing firms and new start-up firms will take years to determine. I believe it is safe to state that the SBIR program is a right step in the right direction. And if the Federal Government remains serious about assisting small business and achieving economic growth, then the future may hold many more innovations similar to the SBIR program.

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L) VENTURE CAPITAL: FUEL FOR TECHNOLOGICAL INNOVATION

"VENTURE CAPITAL'S ROLE IN FINANCING INNOVATION FOR ECONOMIC GROWTH"

Jeffry A. Timmons, Babson College

April 1985

ABSTRACT

Previously, there has been little empirical evidence about the rule of venture capital in fostering technological innovation. Recent research, sponsored by the National Science Foundation, and Babson College and completed with my colleagues Stanley E. Pratt and Norman Fast (Venture Economics and Venture Capital Journal) and William E. Bygrave, shed some new light on the flow of venture capital to highly innovative technological ventures from 1967-82. The evidence suggests that venture capital not only plays a significant role, but that it is a unique kind of investing in terms of when, where and how it is done. Ironically, this research indicates that the "capital" in venture capital is apparently the least important ingredient in fostering technological innovation. Rather, it is management intensive, requiring very early involvement by venture capitalists in nurturing budding innovators and technology, and thereby "bird-dogging" and "accelerating" the emergence of highly innovative technologies. Further, the post-1979 reduction of the capital gains tax has led to unprecedented growth and development in the venture capital industry. One result has been that a new industry structure is emerging, and along with it some new danger signals for the future flow and commercialization of technological innovation.

VENTURE CAPITAL AND INNOVATION

The contribution of smaller, high-technology companies to technological innovation and economic development has become a topic of interest to both public and private sector policy makers. Research highlighting the magnitude of that contribution has demonstrated that smaller high-technology companies, and the process by which they develop are important phenomena to understand. If current research findings hold true, this class of small businesses is the source of a majority of "radical" technological innovations and a disproportionately large share of employment growth.[2,m 4, 19, 29, 38, 39, 41]

As a critical element in the establishment and growth of many of these smaller, high-technology companies, venture capitalists provide financing as well as management services.[6, 33, 35] Although less visible than the high-technology companies themselves, the venture capital industry also plays a role in technological and economic development via its direct involvement in the development of smaller, high-technology companies. This role, however, is not well understood. The venture capital industry is generally perceived as an agglomeration of homogenous firms, whereas in fact, they are quite heterogeneous. Differing objectives, strategies, resources, locations, associations and organizational forms result in a great deal of variety within the venture capital industry. This diversity needs to be understood and incorporated into well-focused research designs if studies of the venture capital industry are to be most productive.

Relevant Literature

Previous research dealing with the venture capital industry has generally focused on three subjects: (1) the decision criteria used in making successful venture capital investments and the characteristics of those investments, (2) the performance of venture capital portfolios and individual investments, and (3) the availability and costs of venture capital.

Decision-Making Criteria and Investment Characteristics

Many of the studies on decision-making criteria and characteristics of successful investments are unpublished, as noted by Tyebjee and Bruno (1981, 1983, 1984) in a preliminary report of their results. Furthermore, they tend to point to the considerable difficulty in conducting research in their field at all. The investing and screening process has been examined by Briskman (1966), Aggarwal (1973), and Wells (1974). The characteristics of successful ventures have been examined by Von Hippel (1973), Hoban (1976), Wells (1974), and Poindexter (1976). Most of these studies confirm the general belief that the quality of the founding team and marketability of the idea are central to success.

Performance of Venture Capital Portfolios and Individual Investments

In 1977 several studies on performance from the early 1970s were summarized by Timmons and his colleagues who showed that new ventures supported by venture capital companies had a significantly lower failure rate — roughly 20% to 30% — than the 80% to 90% failure rate for new firms in the economy at large. DeHudy, Fast and Pratt (1981) analyzed the portfolios of five prominent venture capital firms (218 investments) and reported a rate of complete failure of 14.7%, with 3.2% of the investments responsible for 31% of the total return. Huntsman and Hoban (1980) reported a 17% failure rate for portfolio investments and an average annual return of 18.9% for three leading venture capital firms. Rubel (1972) examined 378 new venture investments and found a loss rate of only 15%, postulating the superior performance of venture capital-backed companies versus new businesses in general. Osborne (1975) examined the performance of the SBIC program from its 1958 origin to 1970. He concluded that the balance of debt versus equity financing, and the asset base of the venture depends on the size of the SBIC.

Of special significance are studies that showed high-technology ventures funded by venture capital investors achieved higher rates of survival and success. For example, Roberts (1970) found a 20% failure rate; Taylor (1969) reported a 35% failure rate for 279 high-technology companies; and Faucett (1971, 1972) found that among startup investments by 14 venture capital companies, only 18% lost money.

Other studies have looked at the role and performance of corporate venture capital and venture groups including Tektronix (1978), Dunn (1975), and Fast (1978, 1981). These and similar studies generally show an uneven record of poor performance due to such factors as slow corporate decision-making, lack of top management commitment, and unfocused or dispersed business technology or acquisition objectives.

Availability and Costs of Venture Capital

Bean, Schiffel and Mogee (1975) concluded that little is really known about potential market imperfections involving the availability of venture capital, while research by Charles River Associates (1976) showed that small, technology-based firms paid higher interest rates and yielded a higher rate of return as compared to other small ventures. A. Shapero (1969) found that loan officers who were familiar with high-technology firms were willing to make loans more frequently without full equity collateral, and in addition, helped guide the operations of the borrowing firm to increase its likelihood of success. The Diebold Group (1974) studied 231 ventures and recommended government guarantees for one-half of the investments in new, technology-based firms to increase availability of venture capital. Earlier studies by Dominquez (1974) and Ofer (1975) reported on the distribution, availability and allocation of venture capital.

Innovation, Technology Transfer and Entrepreneurship

More recently Abetti and Stuart (1985)[1] have documented an extensive review of the state-of-the-art knowledge on the interrelationships of innovation, technology transfer and entrepreneurship. This literature concludes that invention alone is not enough. Innovation - the critical next step - is the offspring of invention combined with technology transfer and entrepreneurship. There is growing evidence that specialized venture capital investing know-how can play a vital role in this process.

Highly Innovative Technological Ventures: What Is Different?

Focused Inquiry

During 1982-84 an NSF sponsored research project* was undertaken to develop a greater understanding of the process by which new companies are developed through the interaction of technologically innovative entrepreneurs and venture capitalists. The objectives of the study included: (1) determining the characteristics of these technology-oriented venture capitalists and entrepreneurs, (2) examining the factors that influence the supply of venture capital to developing small, high-technology companies, and (3) determining whether public policy instruments may be used effectively in this process.

Three fundamental hypotheses were explored in our research:

- A certain segment of the venture capital industry is responsible for the creation, financing and development of a surprisingly large share of small, high-technology companies. Although a large portion of the venture capital industry participates in such financings, a smaller subset of venture capital firms actively generate such investment opportunities and play the critical role in their development. Therefore, generalizations that are drawn from analyses and studies of the operations of the venture capital industry as a whole may not provide accurate insights into that segment of the industry that is most responsible for the creation and development of innovative, high-technology companies.

- A certain type (or types) of entrepreneur is involved in organizing and operating these new, high-technology companies. These entrepreneurs possess certain common characteristics such as educational background, career paths, and professional associations that make them effective in their role and particularly attractive to venture capitalists as new venture managers. Therefore, accepted generalizations regarding entrepreneurs as a population may not be relevant for this sub-group.

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*This study was conducted by Dr. Jeffry A. Timmons, Professor of Entrepreneurial Studies at Babson College, Wellesley, Massachusetts, Mr. Stanley E. Pratt, Dr. Norman D. Fast and Ms. Roubina Khoylian of Venture Economics, Wellesley Hills, Massachusetts and Dr. William D. Bygrave of Bryant College, Smithfield, Rhode Island. It was sponsored by the National Science Foundation under 1S182-13157 with support from Babson College. Any opinions, findings, conclusions, or recommendations expressed in this study are those of the authors and do not necessarily reflect the views of the National Science Foundation.

° These sub-groups of venture capitalists and entrepreneurs are responsible for the establishment of small, high-technology companies. It is also hypothesized that: (1) many of the successful new technology-based ventures involve management teams rather than a single entrepreneur, (2) in many cases venture capitalists play a key role in the formation of these teams, and (3) in some cases entrepreneurs who have successfully developed a prior venture move on to create other new ventures (often financed by the same venture capitalists), thus recycling their entrepreneurial skills.

Research Questions

This study sought answers to a number of questions:

° Are there differences between "highly innovative" technological ventures (HITVs) and "least innovative" technological ventures (LITVs)?

° What factors and characteristics distinguish the HITVs and LITVs, as well as the venture capital firms that emphasize these types of investments?

° What trends characterize the flow of venture capital from 1967 through 1982?

° What policy implications and recommendations emerge from the findings and interviews with entrepreneurs and investors?

Methodology

The study was carried out in 3 parts:

First, 1501 first round portfolio investments made from 1967 through 1982 recorded on the Venture Economics database were categorized as to their technological innovativeness. The flow of venture capital to these 1501 firms was examined and the HITV investments were compared to LITV investments.

Second, 464 venture capital firms (with one or more investments in those 1501 companies) were categorized as to their involvement with and emphasis on HITVs and LITVs.

Finally, selected field interviews focused on the dynamics of innovative technology entrepreneurs working with venture capitalists to spawn, finance and develop tomorrow's technology-based industries.

Potentially, this study could have direct application to both NSF's operating programs and to other federal, state and local government programs and policies. For example, the Small Business Innovation Research program currently operated by NSF should benefit from an intensive analysis of the elements and processes involved in developing innovative, high-technology companies. Also, local economic development organizations are likely to find a delineation of the process by which new, high-technology companies are formed to be valuable to the design of their own program strategies (current interest in the growth of new, high-technology companies as an instrument for economic development is rapidly increasing in the economic development community).[3, 11]

The Venture Economics database of about 4000 venture capital backed portfolio companies was randomly accessed to create a new database of 1501 investments during the period 1967 to 1982, sorted by four year periods beginning in 1967, inclusive. All financial flows were normalized to 1981 dollars to capture the REAL dollar investments since the post-1967 has been so inflationary. These investment dollars are for the first round of venture capital in that particular venture. Samples were rated independently by three researchers to distinguish the extent of technological innovativeness of each of these firms, based upon the company and product descriptions in the database, at the time of that initial round of financing. Initially, several criteria, such as technology, product, application, marketing, process, and systems were evaluated applying a scale of one to seven. Tests of inter-rater reliability using the BMDP statistical package resulted in the use of 'technological application' ($r = .89$) and 'overall technological innovativeness' ($r = .93$) as the best differentiators of innovativeness.

Cluster analyses were used on a sample of 185 rated firms to determine if sub-groups could be identified by innovativeness, and to develop hypotheses without contaminating the database. Distinct sub-groups emerged for the 'highly innovative', 'least innovative' and 'the rest' (using the Hotellings test of two random sub-samples resulted in p values of .0000). Analyses and comparisons against the variables in the database were then performed on the two sub-groups.

The same procedure was used to identify and compare the 464 venture capital firms in terms of the extent of their involvement in "highly" or "least" innovative technological ventures.

Several cautions should be noted in considering the findings. While the database is the most elegant of its kind available anywhere it is less than perfect. Some missing values for certain variables were encountered, and are inevitable in such research. Since the majority of the firms in the database are privately held intimate details of product, technology and performance are less than ideal. Finally, if there are any biases built into the database they would be skewed toward the most recent period 1979 to 1982, since the data in this period tends to be more complete, and considerably more venture capital investing activity has occurred. However, this also quite fairly represents the emerging nature of this relatively new industry.

SUMMARY OF PRINCIPAL FINDINGS

1. There has been a significant increase in overall venture capital investment activity beginning in 1979 (in 1981 dollars) and a surge in initial financings of highly innovative technological ventures compared to the least innovative.

   ° The total pool of venture capital has grown from approximately $2.5 to $3.0 billion from 1969 through 1977, ($6.2 to 4.5 billion in "real" 1981 dollars) to $7.6 billion by the end of 1982 ($7.1 billion in 1981 dollars). The amount of new capital being added annually to the total pool increased from a low of 10 million ($17 million in 1981 dollars) in 1975 to $1.7 billion in 1982 ($1.589 billion in 1981 dollars). Epilogue: in 1983 *4.5 billion was committed, while 1984 saw a decline to $3.1 billion. By early 1985 the total pool was about $16.5 billion.

   ° As the pool of venture capital has grown the volume of new (first round) venture capital investments has also risen over the last few years. Annual disbursements which were only $250 million in 1975 ($423 million in 1981 dollars) had increased to $1.8 billion in 1982 ($1.7 billion in 1981 dollars).

   ° In the sample of 1501 first round investments during 1967 to 1982, the flow of venture capital going to HITVs during the 1979-1982 period grew to $586.4 million, exceeding the amount invested in LITVs for the first time since 1967-1970, and greatly exceeding the $102.6 million during 1975-1978. Investments in HITVs as a percentage of all the 1501 investments increased from a low of 18.8% in 1971-1974, to 47.2% during 1979-1982. In 1982 HITV investments out-numbered LITVs by nearly 2.5 to 1.

2. Changes in the federal capital gains tax in 1969 and 1978 were followed swiftly by dramatic changes in the flow of new funds into venture capital firms.

   ° The increase in the maximum capital gains tax rate from 25% to 48.2% in 1969, was followed by an immediate decrease in new capital committed to venture capital funds. The inflow of new capital dropped from $171 million in 1969 to $97 million in 1970 (from $424 million to $227 million in 1981 dollars) and continued to decrease. With the reduction of the maximum tax rate in 1978 to 28%, new capital commitments surged to $570 million from only $39 million in 1977 (from $59 million to $795 million in 1981 dollars).

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*See Timmons, J. A., Bygrave, W. D., and Fast, N. D., "The Flow of Venture Capital to Highly Innovative Technological Ventures," in Frontiers of Entrepreneurship Research, Hornaday, J. A., Timmons, J. A. and Vesper, K. H., eds., (Wellesley, MA: Babson College, 1983 and 1984).

3. There has been significant growth in the number of first round investments in startup HITVs during 1979-1982.

- Overall, the number of first round startup investments increased from 72 in 1967-1970 to 774 in 1979-1982. In 1979-1982, compared to 1967-1970, there were nearly six times as many HITV startup investments. The latest four years accounted for 158 of the 221 HITV startup investments since 1967, or 71.5%. In contrast, there were just 43 LITV startups during 1979-1982.

- There was an increase in the number of investments in startups compared with later stages. During the 1967-1982 period the number of startup investments in HITVs (221) was two and one-half times greater than first round investments in startup LITVs (89), and accounted for 71.3% of all startups.

- Although the number of HITV startups has increased, the proportion of HITV startups has decreased from a high of 75% during 1971-1974 to 49.7% during the most recent 1979-1982 period. In contrast, expansion financings accounted for only 6% of HITV investments during 1967-1970 but had increased to 26.8% in 1979-1982.

4. HITV investing actually requires less capital than do initial investments in the least innovative ventures.

- First round investing in highly innovative technological ventures is a quite specialized, management--not capital--intensive activity.

- Compared to the "least innovative" firms, HITV investing does not require more capital. First round investments, in HITVs during 1979-1982 were only 74% of the average investment in LITVs ($1.535 vs. $2.066 million in 1981 dollars — significant at p<.0178*). This was also true by stage: Seed stage HITVs averaged just over one-half the amount of money going to LITVs; and startup stage HITVs averaged $1.6 million vs. $3 million for LITVs. This pattern was true for later stage investments as well.

- The larger, capital intensive venture capital firms are no more involved in investing in HITVs than are the smaller funds. The amount of capital under management was not significantly different between those venture capital firms emphasizing either HITVs or LITVs.

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*The significance or "p" level, refers to the probability that the differences in these means have occurred by chance. The .0178 indicates that there is a very low probability—178 out of 10,000—that these numbers occurred by utter coincidence. A "p level" of .05 or smaller is considered statistically meaningful.

5. There is a core group of highly skilled and experienced venture capital firms accounting for a disproportionate share of HITV investing.

   - The 21 venture capital firms which were most active in HITV investing represent less than 5% of the 464 firms in our database, yet they were involved in nearly 25% of all the investments in HITVs.

   - This specialized know-how includes a wide web of contacts and networks among the HITV community, a greater degree of syndication, and a greater intensity of involvement in these fledgling firms. The heavy involvement with the portfolio companies usually occurs through the originators or lead investors, who often serve as members of the Board of Directors.

6. Venture capitalists' investments in highly innovative technological ventures are made at a significantly earlier stage of the venture than in the least innovative firms.

   - Nearly two-thirds of the first round investments in HITVs occurred at the seed and startup stages (249) rather than at later stages (125).

   - During the 1967-1982 period the number of startup investments in HITVs (221) was two and one-half times greater than the startup investments in LITVs (89). HITVs accounted for 71.3% of these combined startups. Seed stage investing in HITVs was three times greater than in LITVs (28 vs. 9) and accounted for 75.7% of all seed stage investments in HITVs and LITVs.

7. Recently, in 1981 and 1982, there has been a significant increase in the proportion of initial investments in SEED stage HITVs compared with all other stages of investments during 1967-1980.

   - The recent increase in all seed investments is surprisingly large. In 1981 and 1982 there was a total of 29 investments. This is a notable increase compared to 16 for the prior 14 years (1967-1980).

   - During the two years, 1981 and 1982, the portion of HITV seed investments to all other stages of HITV investments was 10.3% (18:174). Earlier (1967-1980) these seed investments (10:207) were less than half that portion 4.8% ($p< = .057$).

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*A SEED financing involves a venture at the proof of concept stage. It may involve product development but rarely involves initial marketing. STARTUP financing is provided to companies for use in product development and initial marketing. Companies may be in the process of being organized or have been in business a short time, but have not sold their product commercially.

- In the last two years HITV seed investment outpaced all previous HITV seed investments by nearly 2:1 ($p< = .057$).

- Overall 28 out of a total of 796 (3.5%) first round investments in HITVs between 1967 and 1982 went to seed stage firms. During the most recent period, 1979-1982, seed stage first round investments in HITVs accounted for 7.2% of all HITV investments during the four years. This is ahead of the 1971-1974 (4.4%) and 1975-1979 (5%) periods, but behind the 1967-1970 (9.4%) period.

8. Venture capital firms active in HITVs create substantial "value-added" to their portfolio companies as a result of their intense, early involvement.

    - Founders of HITVs reported that they actively seek out those venture capitalists with noteworthy reputations for their non-monetary, high "value-added" contributions to fledgling firms. This highly active role includes finding and selecting key management team members, making customer and supplier introductions, providing credibility with these customers and suppliers as well as with bankers, and emphasizing and accelerating a thoughtful focus on strategy and future plans when overwhelming current pressures might postpone such planning.

    - Founders of HITVs uniformly reported that "it is more important who they obtain funding from, than how much and at what price."

    - Venture capitalists who emphasize HITV investing perform a highly catalytic role in finding and blending the necessary combination of people, technology and opportunities to bring unproven ideas to commercial reality.

9. There are definite geographical "oases" where founders, technologists and venture capitalists cluster to account for the bulk of HITV investing.

    - Confirming the well known industry pattern, some areas of the country are more fertile than others for growing new companies with a technological bent and high ambitions. Venture capital firms with main offices in California (42.9%), New York (23.8%) and Massachusetts (9.5%) accounted for over three-fourths of all HITV investing. Less than half of the investment in LITVs was accounted for by firms in these three states.

    - Independent private venture capital firms accounted for 85.7% of all HITV investing, and are even more concentrated, by main office, in these three states combined. Less than 5% of the 464 venture capital firms analyzed accounted for 25% of all HITV investments.

10. There is a "Bird-dog phenomenon" characteristic of those venture capital firms focusing on highly innovative technological ventures in the form of "outreach" to identify promising opportunities.

- Contrary to the notion that venture capital investors sit and wait for business plans and ideas to come to them, many of these firms engage in active "outreach" and "bird-dogging" efforts to identify exceptional innovators with the relevant technical expertise and commitment to bring out the commercialization of promising technologies. They play a unique "bridging and coalition building" role in bringing together values and talents of the academic and scientific cultures that spawn highly innovative technologies, with their business seeding and building know-how.

11. There is an "acceleration effect" resulting from the venture capitalists' intense involvement in the creation of highly innovative technological ventures.

    - Innovators, entrepreneurs and investors working together accelerate the velocity and compress the time span in bringing new technologies to commercial maturity and societal utility. Founders and investors alike gave numerous, detailed examples of HITVs that became realities in what they believed to be one-fourth to one-half the time they would have required within large, established organizations.

POLICY IDEAS AND RECOMMENDATIONS

1. There was a near consensus that one of the most vital roles the federal government can play is to increase support for basic research in the sciences.

    - There was a shared view among participants in the study that the roots of new technological opportunities depend upon a continuing flow of knowledge from basic research.
    - University and technical centers suffer from insufficient federal support for basic research needed to foster the quality education to train and develop the human capital necessary to support the subsequent flow of new technology.

2. A general "hands off" view was voiced when it came to federal, regional and state involvement in the process.

    - There was a shared fear that more active government involvement might well do more harm than good. From the venture capitalists in particular there was a consensus that the existing market mechanism was working precisely as it should.

- There was considerable concern expressed by entrepreneurs and investors alike that the federal government and Congress may overestimate the potential contributions of high technology firms as America's "economic savior." No one we talked with suggested that there is even the glimpse of a panacea locked inside all the high technology hype and publicity. While most wished broad-based economic renewal were that simple, the realities are that it is not. There is a noticeable difference between being an important contributor to such renewal and a cure-all.

3. There was support for specific action in the tax and regulatory areas.

   - There was broad-based agreement that the reduction of the effective capital gains tax rate from 48.5% to 28%, and subsequently to 20%, was the single most important factor in fostering the rebirth of venture capital investing beginning in 1979. Surprisingly, few argued that a further reduction, while always helpful, would make a vital difference in HITV investing activity.

   - Potentially more venture capital activity could be drawn to HITVs if these became more attractive investment opportunities. By eliminating all capital gains taxes on investments held for at least four or five years the potential return on HITV investments would be raised. Such a proposal would tend to favor the patient investor, rather than encourage the early in/early out investor.

   - The proposed Department of Labor ERISA ruling on "plan asset" legislation would require fiduciary responsibility by the pension fund manager for each individual portfolio investment in the venture capital fund in which the pension fund has invested as a limited partner. Such a regulation is a potentially enormous barrier to all venture capital investing, but especially for HITVs, since they are more elusive and difficult to evaluate, and to defend, once such an investment goes sour.

   - Tax policies to improve the cash flow of HITVs would significantly enhance their attractiveness for entrepreneurs and investors alike. Accelerated depreciation schedules and targeted write-offs for very early R & D intensive expenditures were frequently mentioned.

   - A careful examination and possible amendment of the antitrust laws as they may inhibit joint research and development efforts is needed.

   - No mention was made of the need for action in the area of patent legislation or rulings affecting hard technology. Most felt this was a relatively unimportant area. The exception, of course, concerns the protection of "intellectual property" in the rapidly exploding computer software technology and applications areas.

MID-1980s: NEW VENTURE CAPITAL CLIMATE AND INNOVATION: Bane or Blessing?

The dramatic dollar increases in the pool of venture capital alone do not reveal the underlying changes occurring in an industry that was dormant--some say nearly extinct--throughout the 1970s. For one thing, there has been a surge of new firms formed, and many new professionals in the business. By early 1985, for example, among the 600 plus firms over half the venture capitalists were believed to have less than four years experience in the business. For another, the typical size of the new funds were considerably larger, and for the first time in the industry's history $100+ "megafunds" were raised, such as the $178 million fund completed in early 1985 by Welsh, Carson, Anderson and Stowe. Along with the larger fund size, and scarcity of experienced venture capitalists to invest all the new funds, the minimum first round investment tended to gravitate upward, exceeding $1 million, and in some instances, even more. During 1982-3, for example, some microcomputer software start-ups attracted $5 to $8 million, mostly spent to gain a distribution toehold.

The industry's growth has not been the domain of the U.S. alone. For instance, as recently as 1979 there was no organized, active venture capital investing in the United Kingdom, where today over 160 firms exist. Similarly, in Sweden there were none, where over 150 firms are active; in Australia, where over a dozen new firms have emerged; and in Japan, where several exist. Still other new firms have surfaced in such countries as Italy, Belgium, Holland, the Philippines, Spain, Kenya, South Korea, and Brazil. Typically, they have sought to establish close linkages to U.S. funds with an international bent.

Recent Trends and Directions

1. Funds are More Specialized, Less Homogenous

Even today there exists a stereotype to venture capital investing. To most entrepreneurs, and outsiders, the industry appears to be uniform in practice, and homogenous in their objectives. After all, who has not heard the epitaph "vulture capitalists," or the invictive: "they follow each other like sheep.

Yet, just the opposite is true when you take a closer look at the industry. This and other research on venture capital investing paints a different picture than the common stereotype. In short, the industry has become more diverse, specialized and less uniform than is generally thought. Sharp differences are visible in terms of investing objectives and criteria, strategy, and focusing on particular stages, size and market-technology niche.

2. Emergence of Feeder Funds

Accompanying this specialization is a new "farm team" system that has surfaced. New regional centers of venture capital investing exists today which were non-existent in the 1970s: Atlanta, Denver/Boulder, Washington/Baltimore, Texas and the southwest. Large, established venture capital firms have crafted both formal and informal relationships with new funds in these areas. Often, one general partner of the established fund will provide time and know-how to the new fund. They may share deal flow, and co-invest in a syndicated deal.

More often than not these new funds focus on "seed" stage or "start-up" deals that can "feed" deals later on to the more conventional, mainstream venture capital firm they are associated with. Take, for instance, Zero Stage Capital, a $5 million Boston fund specializing in seed stage investments. As only a handful of other funds have done, they plan to raise a "First Stage Fund" of around $25 million to make follow-on investments in those seed ventures that are succeeding, rather than have to turn to others to totally fund their expansion needs.

Similarly, a relationship exists between Atlanta Technology Development Fund and Welsh, Carson, Anderson & Stowe, the large and well known New York City fund. One of the WCAS general partners provides active advice and know-how to ATDC. ATDC, a $12 million+ fund, seeks out smaller seed and start-up investments in new technology based firms. Should a portfolio firm reach the explosive growth stage, the venture is then an attractive prospect for the much deeper pockets of WCAS.

With all the hoopla surrounding high-technology firms in recent years numerous opportunities in low, moderate and non-tech areas have been overlooked, by most. Not surprisingly, this opportunity driven venture capital investing process is responding just as one would hope. Specialized funds are also emerging to capture these overlooked niches. For example, historically, very few deals were done in non-technology consumer product companies. Today, as an example, one new fund specializes in leveraged buyouts in consumer retail products and merchandizing companies. The general partners have lengthy operating experience in the industry.

3. Smaller Seed and Start-Up Investments Drying Up

One result of these trends is an apparent evaporation of funds for smaller seed and start-up stage investments, in the latter half of 1984, which is continuing into 1985. According to VENTURE CAPITAL JOURNAL about 43% of all venture capital investments in 1983 went to start-ups. In 1984 this number had dropped sharply. The high valuations of 1983 "raging bull market" for IPOs were followed by sharp drops in 1984, and a shortfall of funds to fuel rapid growth through public issues. To illustrate, The Venture Capital 100 index of publicly traded firms that are backed by venture capital (tracked by the VENTURE CAPITAL JOURNAL) fell for the first time since its inception from a 1983 high of 1100 to 550 by early 1985.

Start-up and first stage investments in the $200 to $600 thousand range have been especially hard hit. Why is this so? Beyond the industry trends noted above, there are other factors contributing to this. Many venture capital firms have numerous troubled ventures in their portfolios. As a result, the premium time of those general partners often most experienced and skillful at finding, nurturing and growing innovative technological ventures, is being allocated to the salvaging or turnaround of problem ventures, such as disk drives, or some microcomputer hardware firms like, Gavilan Computers, and software ventures.

For another thing, since start-up and first stage investing demands the greatest intensity of involvement by venture capital investors, this type venture has felt the greatest effects. Many investors are heavily occupied in cleaning up their portfolios, and leveraging their limited time by seeking numerous bargains in the greatly devalued OTC market as well. Still other venture capital funds, lacking seasoned partners who know how and are willing to work with start-ups and first stage ventures, are avoiding such ventures entirely. Consequently, the level of start-up and first stage activity is down sharply from 1983.

4. New Legal Environment

One side-effect of the heated competition in venture capital in recent years is a more sophisticated, legal and contractual environment. Compared to ten years notable shifts and innovations have occurred in the governing legal process and documents which accompany venture capital deals. It also appears that the frequency and extent of litigation is growing, with suits for the first time by limited partners, entrepreneurs, and surprisingly, even their own general partners, against venture capital firms.

The final document governing the investor-entrepreneur relationship -- called the Investment Agreement-can be a few inches thick, and even comprise two volumes. In it are very specific terms and conditions which define the rights and obligations of the founders and investors. While such agreements have been a part of the process since its inception, new areas are addressed in detail not common previously. These include the ownership of patents, trade secrets, and proprietary product rights; and wider impact on key employees of employment agreements, ownership and compensation, vesting provisions and specific restrictions on the so-called "lettered stock" issued to investors and founders. Finally, the prevalent use of convertible preferred shares to make equity investments has been accompanied by the creation of specific rights for investors to actually replace management and control the company under certain circumstances, even though they may hold initially less than a majority of the common stock.

THE FUTURE: DANGER SIGNALS AHEAD FOR TECHNOLOGICAL INNOVATION

What effect might the new venture capital climate--and the possible impediments it might induce--have on the rate and intensity of commercialization of technological innovation?

One implication of all this suggests there may be a shortfall emerging in the U.S. for venture capital to fuel seed, start-up and first stage ventures. Ironically, this seems to be occurring at a time when there has never been a larger total pool of venture capital available. A specific gap appears to be emerging for seed, start-up and early stage ventures needing $50 to $600 thousand of venture capital. Current trends and pressures are combining to create a gap as investors are increasingly averse to doing start-up and first stage investments of this size.

Ironically, many of the trends and pressures in the venture capital industry in the mid-1980s—larger funds looking for larger minimum investments, with an aversion to start-ups, and a more stringent legal structure to deals—may inadvertently shift investing attention away from more innovative technological ventures. Especially for those concerned with fostering technological innovation, the implications are painful. How can technological innovation be encouraged if the venture capital community is unable or unwilling to contribute so disproportionately to the funding of new innovations as it has in the past? If innovations fail to attract sources of seed and start-up capital, won't they become stillborn? What alternative sources of funding may be encouraged to fill such a void?

To make matters worse, the current slowdown and aversion to such investments by the mainstream venture capital community may be exaccerbated by recent federal tax proposals which could raise the capital gains tax. Nothing will slow the flow of venture capital more decisively—particularly to high technology ventures—and thus the pace of technological innovation, than the proposed increase of the current capital gains tax to 35%, or more.

On the brighter side, researchers and policy makers should consider this an era "rich in opportunities" to conduct research in these relatively unchartered waters. The issues raised by our own findings, and the implications emerging from the current climate, far outweigh the available empirical knowledge, and any theory construction, on the relationships among technological innovation, technology transfer, venture capital financing, and entrepreneurship.

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M) CREATIVITY AND STRATEGIC BUSINESS PLANNING

"STRATEGIC PLANNING AND ENTREPRENEURSHIP: WHAT ARE THE CURRENT CONNECTIONS?"

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ABSTRACT

The flurry of entrepreneurial activities has seen new ideas proliferating exponentially, sources of funding for businesses increasing geometrically, and business failure rates increasing linearly. Part of the problem with failure of firms is an old one: inability to plan. How, thus, can this mistake stop being made? One means to arrest this occurrence is to directly address and learn the current means to effectively respond to opportunities as well as problems. Strategic planning provides this means. Given that activity, another avenue for integrating strategic planning into all firm endeavors is creativity. Together these techniques can further improve product or service innovation. As the firm example demonstrates, entrepreneurial ventures are directed well when there is synergy among these key operating elements. Implications for enhancing entrepreneurship are also described.

INTRODUCTION AND OVERVIEW

The pace of professional life like all facets of our lifestyles is accelerating. The rate of new activities, new information, new opportunities and new challenges is growing. Along with this accelerated rate of change comes the inevitable response of recognizing, absorbing and acting on such occurrences. Business people are faced with an array of means to carry out their response(s). The array consists of such items as to:

- ignore them until crises ensue
- handle each concern as it occurs -- quickly, decisively, and finally
- prepare for all contingencies in advance and then use "canned" actions to handle whichever concern may arise or
- develop a flexible technique and attitude for discovering and selecting timely options to address each change's short and long term impacts.

For the entrepreneur, the need to have effective change responses is even more acute. Here is a self-motivated person who is driven to do many things well concurrently in order to achieve a success business operation.

To do so implies not only having the tenacity, but also the pertinent skills. This conference is seeking to stimulate a greater awareness and capability among existing or new entrepreneurs in how to be both creative and innovative with their business endeavors. Following this theme, this paper will focus on how strategic planning can be an indispensable tool to accomplishing creative and innovative entrepreneurial ends.

Much has been written or discussed about strategic planning in recent years. So much so, in fact, that it has almost become a "buzz phrase" for anything having to do with directing or planning. To clear the air, and direct our attention to a concept we can readily understand and, more importantly, immediately use, strategic planning is simply a firm-oriented and firm-directed process of identifying and responding to external or internal positive or negative occurrences in order to sustain the firm's viability. Yet, the myths remain that strategic planning is the same as long-range planning, business policy or business planning. Long-range planning was developed to provide snapshots of how the business and its environment will be 10, 20, or 25 years hence. Yet, the shortcoming in this snapshot is the lack of portraying how to bring about the future. Second, business policies are guidelines for decision-making by management. Such guidelines are part of the alternatives generated from a strategic plan. Third, business planning is used to produce a plan for obtaining money - and that's it until money is required again. Thus, the business planning misses ways of taking care of strengths and weaknesses in all facets of the firm. Therefore, strategic planning is a dynamic means of accomplishing a company's purpose in a on-going, effective manner.

THE ESSENCE OF STRATEGIC PLANNING

As with most useful concepts, strategic planning can be illustrated through a simple graphic: a sequence of steps with feedback (as shown in Exhibit 1). This graphic portrays the basis of identifying and responding to firm concerns in a timely fashion so the company can progress well.

Exhibit 2 presents the premises that help start, develop, and sustain the strategic planning process. As the Exhibit demonstrates, strategic planning charts direction for the firm. It does not make decisions; rather, it gives members the pertinent information to make better decisions. If used properly, strategic planning won't become rigid or relegated to one area of the firm's activities; instead, it will continue to be a well-spring of creative questions and answers to company concerns. Further, the process and tools of strategic planning are not likely to become irrelevant; they will be used time and again to serve the changing needs of an evolving organization. Yet, in order to be effective, strategic planning requires the support of all the firm's members and the active participation of the president. In addition, the process is flexible

Exhibit 1

Phases of Strategic Planning

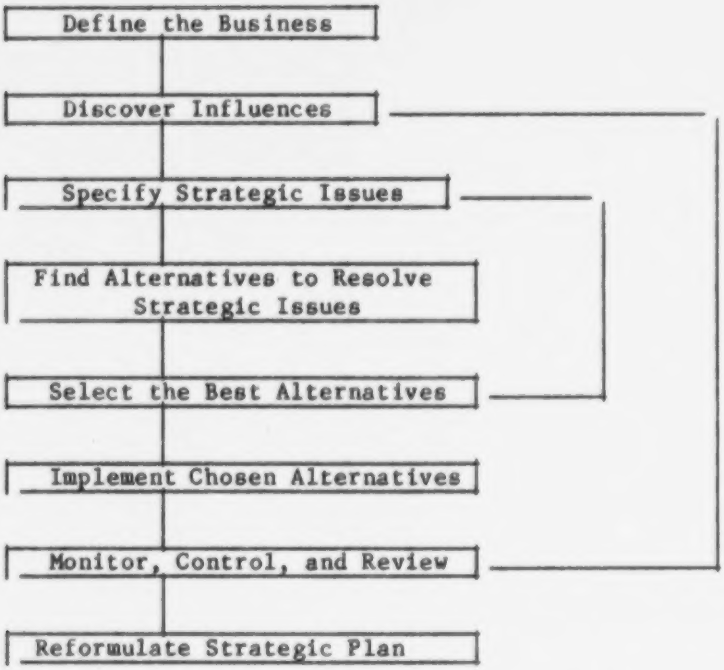
Define the Business
Discover Influences
Specify Strategic Issues
Find Alternatives to Resolve Strategic Issues
Select the Best Alternatives
Implement Chosen Alternatives
Monitor, Control, and Review
Reformulate Strategic Plan

Exhibit 2

Premises Governing Strategic Planning

PREMISE	IMPLICATIONS
General Use	-- Where are we? -- Where do we want to go? -- How will we get there? -- Who will be responsible? -- How much will it cost? -- When will it happen?
Flexible Process	-- Dynamic -- Responsive to change -- Participatory -- Encourages innovation
Useful Results	-- Solves company difficulties -- Generates new opportunities -- Ensures longer term survival
Total Involvement	-- CEO leads and designs climate for self-examination -- Members of firm encouraged to participate and give feedback
Wide Applicability	-- Problem-solving technique for any type of concern at any organizational level
Encompasses All Planning Activites	-- Charts direction for firm -- Uses short-term acts as prelude to longer-term successes
Stimulates Better Interaction	-- Involves entire company -- Deals with resistance to change or conflicts with innovation
Cyclical Activity	-- Done using same steps at regular intervals -- Will evolve as reflection of firm's development -- Application will also cause firm to evolve
Good for Any Age Firm	-- Done before firm's doors are opened -- Done during start-up -- Done during growth -- Done after several years of operation -- Done for firms in crisis or showing signs of trouble

enough to incorporate changes that occur during its implementation. The upshot of this effort is a stronger organization better able to meet its market demands and to provide a viable work enviroment for its members.

Unlocking the strategic planning process is given through these subsequent explanations:

A. Define the business. The definition, in 1985 terms, will include the following:

   1. Statement of Purpose. What is the specific nature of your business, and what is its end result?

   2. Goals. What does the firm want to achieve over its lifetime of operation?

   3. Objectives. What does the firm want to achieve in the short term?

   4. Mission. What is the firm's sense of social responsibility?

   Together, these four terms give substance, direction, and meaning to the firm. In stronger language, without knowing who you are or where you're going, strategic planning will have little use. Exhibit 3 is a strong example of the need to "think through" the business from the start. It demonstrates how clear, complete thinking about your business can put you in the driver's seat in directing its future growth. From this definition, the rest of the firm's concerns are derived. Further, the items presented demonstrate that a team of experts and a flock of wizards are not prerequisites to doing strategic planning well. Instead, the concern is with whether the motivation exists to do strategic planning, not whether the intelligence does.

B. Discover influences. Next, determine what outside influences affect the company or will affect its operation. This information is collected through current information analysis and the study of the firm's internal operations, structure, and morale. Together, the collected information form an "influence database." Exhibits 4 & 5 demonstrate the kinds of information to consider collecting. Exhibit 6 shows how to extract relevant and useful knowledge from the database.

C. Specify strategic issues. At this point, the influence database is used to produce concrete statements of the particular concerns facing the company. These factual sentences are then ranked in

Exhibit 3

"Natu-Bake"

I. **Purpose**

To open and successfully operate "Natu-Bake," a whole foods, natural bakery specializing in wheat and rice products.

II. **Goals**

A. To develop a wide variety of nutritous, fresh baked goods.
B. To provide such baked products at low prices, emphasizing bulk sales and promoting individual purchases.
C. To satisfy the requirements of people on special diets.
D. To produce all goods on a cooperative basis.
E. To expand the product line to include barley and rye products as well as providing hot meal services to institutional food organizations.

III. **Objectives**

A. To attain sales of $80,000 during the first year os operation.
B. To locate in an area of varied community activities within three months.
C. To obtain all required machinery and initial supplies at least cost within four months through barter, credit extension and buying used or leasing.
D. To secure seed capital of $50,000 in the next ninety days.
E. To apply and obtain an SBA loan with the seed capital for $180,000, within six months.

IV. **Mission**

A. To improve the availability, freshness, and nutrition of baked goods for local area residents.
B. To hire members from the community.
C. To participate in community organizing and activities.
D. Each member of the cooperative will give unpaid community service each month.
E. All members are owners.
F. Any volunteer receives a discount on items purchased.
G. To repay any debt within ninety days and any loan within three months of due date.
H. To establish and implement a cadre of ethics and revise it over time.

Exhibit 4

Gamut of External Factors

I. Economic

- A. Status of Economy
- B. Inflation Rate
- C. Interest Rate
- D. Level of Taxation
- E. Unemployment Rate
- F. Rates of Exchange
- G. Current Balance of Payments
- H. Import Quotas
- I. Fiscal Incentives for Commodities
- J. Cost of Capital
- K. Capital Investment Pattern(s)
- L. Credit Types and Pattern(s)
- M. Change in Personal Income
- N. Percent of Manufacturing Capacity
- O. Producer Price for Finished Goods

II. Social and Political

- A. Accounting/Legal Standards and Regulations
- B. Population, Densities, Distribution and Mobility
- C. Current Consumer Buying Patterns
- D. Innovations in Firm Member and Public Relations
- E. Forces Causing Social Changes
- F. Product Disclosure Statements
- G. Education Levels
- H. Cultural and Leisure Patterns
- I. Environmental, Health & Safety, Employment & Labor Laws
- J. Business Philanthropy Patterns
- K. Business/Community Activities and Interfaces
- L. Recent Legislation
- M. Recent Changes in Income Distribution & Age of Population
- M. Barriers to Market Entry
- O. Current Social Attitudes Toward Business
- P. Current Social Issues - Crime, Welfare, Abortion, School Prayer, Advocacy, Immigration, Deregulations, etc.
- Q. Education & Housing Patterns
- R. Licenses and Fees

Exhibit 4 (cont'd)
Gamut of External Factors

III. Industrial

A. Merger, Acquisition and Consolidation Pattern
B. Industry and Company Profiles
C. Data Security Measures
D. Energy Conservation Mechanisms
E. Area Profiles for Location Decisions
F. Takeover Activities
G. Business Creation Rates
H. Supply and Availability of Resources
I. Patent, Trademark & Copyright Procedures
J. Contracting with the Federal Government
K. Methods of Doing Business Abroad
L. Activities and Impacts of Trade or Professional Associations
M. Investment Patterns of Other Companies
N. Pricing Schemes of Competitors
O. Kinds of Competitors - by Product/Service, Region & Consumer
P. Market Shares of Competitors - by Product/Service, Region & Consumer
Q. Size of Market(s)
R. Growth Rate of Market(s)
S. Diversity and Cyclicality of Market(s)
T. Current Advances in Product/Service, Process or Distribution Technologies
U. Level of Research & Development
V. Locational Concerns

Exhibit 5

Gamut of Internal Factors

A. Organizational

1. Structure
2. Communication Patterns
3. Motivation/Incentives
4. Decision-Making
5. Problem-Solving
6. Corporate Culture
7. Leadership
8. Innovation
9. Response to Change
10. Ethical Business Practices
11. Corporate Social Responsibility
12. Consumerism
13. Control Systems
14. Career Potential
15. Mix of Businesses

B. Performance

1. Growth Rate
2. Net Profit
3. Breakeven Point
4. Earnings per Share
5. Accounts Receivable
6. Sales Volume
7. Return on Investment
8. Personnel Turnover
9. Output Per Person
10. Resource Allocation
11. Firm Processes and Outputs
12. Marketing Activities
13. Firm Reputation
14. Information Access and Use
15. Capital Acquisition vs. Internal Financing
16. Accomplishment of Firm Definition
17. Effectiveness of Strategic Planning
18. User Satisfaction
19. Ability to Handle Resistance to Change and Resolve Conflicts
20. Market Share
21. Firm Long-Term Solvency
22. Management Capacity/Output Rate Match
23. Founder Influence
24. Other Financial Ratios
25. Impacts of Policies
26. Distribution of Capital

Exhibit 5 (cont'd)

Gamut of Internal Factors

B. Performance

27. Market Capacity
28. Technical and Locational Advantages
29. Pricing Scheme
30. Output Quality
31. Need and Type of R&D
32. Inventory Turnover
33. Incentive Program Impacts
34. Degree of Risk-Taking
35. Safety Record
36. Position and Duration in the Industry
37. Level of Service Quality
38. Sufficient Legal Protection

Exhibit 6

Refining the "Influence" Database

Process:

A. Review information obtained from database for accuracy and usefulness

B. Add or delete data items and sources to obtain more pertinent information

C. Periodically, prioritize strategic issues for your firm

D. Use Influence Database to confirm importance and discover implications for strategic issues

E. For all strategic issues of interest, look at primary, secondary, and tertiary consequences

F. Based on E., specify set of alternatives to deal with strategic issues of immediate concern

G. Choose and implement alternatives using decision criteria

H. Follow strategic issues of longer range concern to observe emerging trends. Assess impact of trends on firm.

importance according to the definition of the firm. Exhibit 7 presents those issues a firm can expect to encounter over its life. Exhibit 8 gives the rationale behind using Exhibit 7 effectively.

D. Find alternatives to resolve strategic issues. Come up with a wide array of plausible means to resolve the strategic issues.

E. Choose among alternatives. First establish the decision criteria used to select alternatives. The criteria will be partially quantitative and partially qualitative (see Exhibit 9). Next, use the criteria to eliminate any undesirable alternatives, and then choose among the remaining alternatives. Examine the set of chosen alternatives and verify that the firm's future direction is reflected. That is, does the alternative help the firm to grow, stabilize, or survive? And is this direction consistent with the state of your business?

F. Implement chosen alternatives. Here, the alternatives are turned into actions to resolve the strategic issues. Specific tasks are defined, resources gathered and people assigned.

G. Monitor, control, and review. During the implementation stage, correct, and reinforce any action. After a given time period, assess the results and make improvements (see Exhibits 10 & 11). Review the progress made and give presentations about the efforts. Also, prepare for the unforseen through responses gotten through contingency planning (see Exhibit 12).

H. Reformulate strategic plan. At the end of the planning cycle, update the influence database. Next, discover new strategic issues. Combine these with unresolved ones from the old strategic plan to formulate and execute a subsequent version (see Exhibit 13).

This process is straightforward and doable. Yet, many, if not most, small business owners and managers find lots of excuses not to use it. There is only one excuse that works: a lack of desire for sustained success and an inability to change.

The outcome of a strategic planning effort is a set of actions to resolve strategic issues. In addition, if there is trouble in choosing among alternatives, it may reflect the way the strategic issues were defined. Or, if the monitoring and control phase turns up some large problems, it may reflect the accuracy and reliability of the influence database. In either case, a return to that phase, proper checking and modifications may be necessary (see Exhibit 1). Thus, given solutions to issues, the firm is ready to better handle these and other issues in its next stage

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Exhibit 7

Stages of a Firm's Evolution

Characteristics			Stages	
	Conception	Initiation	Beginning Operations	Initial Success
1. Strategic Decisions	- Business motivations - Business possibilities	- Items for Influence Database - Means of selecting alternatives - Tax structure - Range of outputs - Lawyer and accountant to use - Financing method(s) - Existing or new business - Location	- Unit price(s) - Means of purchasing resources - Computer system	- Client/customer channels - Changes to outputs - Change in location - Overall organizational structure
2. Major Activities	- Discover entrepreneurial characteristics and small business talents - Evaluate primary concerns to beginning business	- Identify market segment(s) - Analyze competition - Discover S.W.O.T.[1] - Assess resource requirements - Define control methods and measures	- Define daily operations - Assess need for further financing - Specify gamut of users - Find more ways to penetrate market - Begin advertising and promotion - Discover S.W.O.T.[1]	- Analyze Influence Database for information and trends - Refine outputs to increase demand - Rework pricing scheme - Assess need for further financing - Develop guidelines for seeking and using advice - Review strategic planning process - Discover S.W.O.T.[1]
3. Structuring of the Organization	- Conceptualize design	- Define basic jobs - Specify particular firm design	- Define hiring and acclimation methods - Establish decision making methods - Implement modes of communication	- Establish problem-solving procedures - Conduct member evaluations - Depict career advancement pathways - Determine member incentives - Describe functional activities
4. Management Style/ Corporate Culture	- Conceive elements of each	- Describe operational values - Form management concept	- Generate leadership guidelines - Participatory vs autocratic involvement	- Define organizational culture - Establish a reputation - Define means of handling change

1. Competitive strengths and weaknesses as well as external opportunities and threats.

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Exhibit 7 (cont'd)

Stages of a Firm's Evolution

Characteristics			Stages	
	Conception	Initiation	Beginning Operations	Initial Success
5. Accomplishments	- Definition of the firm - Strengths and weaknesses	- Create new organization - Develop initial strategic plan and implement it - Have market penetration scheme - Define means of capital accrual - Delimit primary responsibilities of firm members - Produce business start-up timetable - Describe provision method for products or service - Resolve S.W.O.T.[1]	- Discover initial consumer acceptance of outputs - Develop and implement strategic plan - Obtain cost-lean operation - Define plan for growth - Institute management information, budget accounting, and control systems - Finish marketing system - Do contingency planning - Determine initial staffing requirements - Resolve S.W.O.T.[1]	- Delegate authority and distribute responsibility - Develop and implement strategic plan - Sustain consumer base - Achieve financial viability - Attain fluid, yet integrated organization - Resolve S.W.O.T.[1]
6. Controls and Performance	- Compare to existing business	- Planned vs actual accomplishment - Output level - Output demand fit - Demand level - Capital usage rate - Staff acclimation time	- Unit cost(s) of input(s) and output(s) - Productivity - Demand - Profit margin - People/job fit	- Firm outputs/users match - Management capacity/output match - Return on investment - Productivity rate - User satisfaction - Member satisfaction - Demand rate - Output quality - Information use efficiency - Degree of founder influence - Percent of accounts receivable or payable to total sales - Degree of coping with change
7. Timeframe (months)	2-12	8-24	6-18	8-30

1. Competitive strengths and weaknesses as well as external opportunities and threats.

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Exhibit 7 (cont'd)

Stages of a Firm's Evolution

Characteristics	Stages		
	Expansion	Crossroads	Maturity and/or Reconception
1. Strategic Decisions	- Additional financing sources - Types and degree of change to organizational structure - Tax structure changes - Going public - Investment opportunities - Trade offs between short and long term success	- Joint venture - Further diversification - Merger - Acquisition - Partial or full company sale - Buyout - Stabilizing the firm - Bankruptcy - Organizational decline or death - Buying back your company - Franchising	- New goals and objectives - New mission - Kinds of business activities - Mix of leaders/members/innovators - New business operating values - New business sales from public sector
2. Major Activities	- Broaden gain to and from consumers - Refine outputs, their provision and pricing scheme - Upgrade growth plan - Refine support activities - Test and assess contingency plans - Revise influence database - Discover S.W.O.T.[1]	- Rework strategic planning process - Discover appropriate growth rate - Redefine product/service mix and client/customer base - Correct chronic ills - Discover S.W.O.T.[1] - Update controls and control system	- Upgrade means of social responsibili- - Respond to competition from former members - Institute "intrapreneurship" - Improve implementation activities - Discover S.W.O.T.[1] - Broaden consumer satisfaction; output quality and markets integration
3. Structuring of the Organization	- Enhance member working relationships - Learn from failure - Balance formal vs informal activities	- Improve structure and work environment - Enhance member career, change & incentive options - Handle member turnover	- Prevent problems using project management - Institute new perspective on training
4. Management Style Corporate Culture	- Produce plan for social responsibility - Handle resistance to change - Discover ways of overcoming conflicts	- Refine coporate culture - Redefine founder(s) influence - Plan for leadership succession - Alter management concept	- Rethink advice; giving and receiving - Enlarge leadership capacity - Integrate workstyle with lifestyle

1. Competitive strengths and weaknesses as well as external opportunities and threats.

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Exhibit 7 (cont'd)

Stages of a Firm's Evolution

Characteristics	Stages		
	Expansion	Crossroads	Maturity and/or Reconception
5. Accomplishments	- Achieve reflective and adaptable organization - Demonstrate effective team and individual leadership - Show ability to handle growth well - Maintain financial viability - Generate high degree of innovation and coordination - Identify and reduce waste - Develop and implement - Resolve S.W.O.T.[1]	- Survive as viable organization - Modify set of firm activities - Position firm for longer term success - Redesign organization - Implement more effective controls - Develop and implement strategic plan - Resolve S.W.O.T.[1]	- Redefine firm and its structure - Achieve high performance levels - Balance innovation with effective management of current situations - Rekindle entrepreneurial spirit - Develop and implement strategic plan - Resolve S.W.O.T.[1]
6. Controls and Performance	- Degree of goals achievement - Percent of market share - Management style/individual leadership match - Effectiveness in handling resistance to change and overcoming conflicts - Change in output quality - Resource use efficiency - Degree of innovation - Soundness of economic and financial ratios - Degree of mission accomplishment - Level of member satisfaction - Level of integrating growth	- Degree of firm solvency - Activities mix/firm definition match - Degree of member adjustment to changes - Effectiveness of firm for long-term survival	- Degree of change response - Diversity of member satisfactions - Degree of problem prevention - Level of long-term viability - Ability to institute improvements - Strength of firm redefinition - Degree of innovation - Improvement in leadership - Workstyle/lifestyle integration
7. Timeframe	12-36	3-18	3-24

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[1] Competitive strengths and weaknesses as well as external opportunities and threats.

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Exhibit 8

Assumptions Governing Exhibit 7

- General Applicability. It can be used for: any size firm, any stage(s) of evolution, and any type(s) of business (i.e. new, nonprofit, franchise, etc.)
- Wide Application. The dynamics of evolution are similar in each stage.
- Cumulative Usage. The control and performance measures compound as move from stage to stage.
- Retention. The results, techniques and insights gained from one stage stay and are used as move from stage to stage.
- Flexible Pathways. The order of evolution stage is progressive. Yet, a firm can move forward and back among the stages, or skip over stages.
- Illustrative not Exhaustive. The elements associated with each characteristic are examples and can be found in stages other than presented.
- Survival Focus. The main thrust of this evolution picture is to demonstrate the firm's continuing existence.
- People Orientation. The emphasis in this graphical representation of a changing firm is on people first, product or service afterwards.
- Environmental Dependence. A firm will tend to remain at a particular stage longer if its external and internal environments are stable.
- Transitions. Mechanisms are shown for handling movement from one stage to another.
- Common Tasks. In each stage, develop and implement responses to change, seek feedback from others, obtain pertinent information to make decisions, and formulate and implement strategic plan.

Exhibit 9

Factors Used to Choose Among Alternatives

* Cost to Implement
* Time to Implement
* Member Acceptance
* Consumer Acceptance
* Availability of Resources
* Intensity of Impact
* Duration of Impact
* Ability to Implement
* Previous Successes or Failures with Alternative
* Implement on Limited Basis First
* Return to Status Quo
* Effects on _______________
* Degree of Adaptive Response to External/Internal Change
* Consistency with Firm Definition, Policies and Activities
* Degree of Redundancy, Overlap or Combination with Other Alternatives
* Number and Degree of Restrictions on Current Use
* Number and Degree of Advantages with Current Use

Exhibit 10

Characteristics of Control

I. Method

A. Set performance standards

B. Observe actual performance

C. Compare actual to standard performance using a technique

D. If deviations occur either:
1. Correct actual performance
2. Change standards
3. Both 1. and 2.
4. Do nothing since the actual performance exceeds the standard(s)

II. Techniques

A. Inspection: Examine design attributes of the output(s) for quality level. Examples of inspection standards include:
1. Thickness
2. Smoothness
3. Logic
4. Format
5. Temperature-Resistance
6. Completeness
7. Uniqueness
8. Interchangeable Components

B. Testing: Determine the operational attributes of the output(s) for quality level. Examples of testing standards include:
1. Noise
2. Accuracy
3. Failure rate
4. Number of applications
5. Uniqueness
6. Tolerance limits
7. Response time
8. Effiency

Exhibit 11

Defining and Applying Control Measures

I. Coming up with control standards

  A. Sources

    1. Past experience - individuals or firms
    2. Professional association
    3. Government agency (like National Bureau of Standards)
    4. Technical handbooks
    5. Experts

  B. Verifying Standard

    1. Request third party opinion
    2. Circulate proposed standard(s) for feedback
    3. Incorporate comments in standard

  C. Validating Standard

    1. Apply control to several situations
    2. Assess results
    3. Ascertain validity of standard
    4. Concerns may lead to modify standard
    5. Verify and validate standard until satisfied with results of control

II. Quality Assurance Plan

  A. Definition -- sue of quality control at several crucial places in the production and dissemination of products or services

  B. Application - when:

    1. Have multiple uses of quality control
    2. Do inspection and testing and quality control
    3. Carry out quality control during many phases of production or provision

  C. Expertise

    1. Achieve consensus on quality assurance activities
    2. Designate quality assurance inspector and interface duties with consumers
    3. Review and update quality assurance plan

Exhibit 12

Contingency Planning

I. Definitions

A. Contingency -- an event, situation or set of actions which prevents an organization from achieving its objectives. Such events or situations occur in an unforeseen manner.

B. Contingency Planning -- the recognition and preparation for such occurrences by asking "what if" questions and designing responses for them. The developed plans are placed in readiness in case such situations should arise.

II. Contingency Occurrences

A. Singular crisis event -- requires immediate or short-term response. Usually such an event cannot be predicted or sought after. (Example: Tylenol)

B. Evolving trend -- situation appears after certain threshold is exceeded. Such outcomes are usually unnoticed or not considered. (Example: Foundation crumbling)

C. Uncalculated changes (either external or internal) directly affecting the implementation of strategic alternatives. (Example: Member disclosing trade secrets)

III. Categories of Contingencies	Examples
A. Physical	Fire, flood, earthquake, machine failure, power outage, vandalism, bomb threat, lightning, robbery, hurricane, personal injury, product defect, etc.
B. Economic	Sudden change in financial ratios, productivity, reputation, personnel, product quality, material or capital supply, etc.; takeover threat; extranormal investment gains or losses; product or service recall; or sudden increase or decline in competitors' activities
C. New Technological Breakthrough	Laser, VCR, digital music disc, etc.

Exhibit 12 (cont'd)

Contingency Planning

D. Human	Death or sudden resignation of firm founder, customer/client boycott, strike, change in member performance
E. Political/Regulatory	Unexpected rule-making, abrupt foreign changes, change in leadership

IV. Formulating Contingency Plan

Define situations which could occur and what kind of responses are appropriate. Use plans to eliminate fumbling, uncertainty, confusion and time delays in reacting to unexpected events. Steps to a contingency plan include:

A. Purpose and Trigger Mechanism(s). What conditions are likely to put contingency plan into action, and what strategic issues (problems or opportunities) need be addressed?

B. Impacts of contingency on operations

C. Ways to mitigate (or exploit) impacts

D. Procedure to resolve impacts including redundancy (like, interlock, double-shield, etc.) where required

E. Control mechanisms and modification of contingency plan to fit specific occurrence

F. Relationships of outcomes to strategic planning

V. Other Observations

A. Whenever possible, do test or dry run of each contingency plan, if possible, under varying circumstances

B. Ensure various contingency plans are not conflicting

C. Review and update contingency plan(s) periodically to ascertain whether:
   1. Continued relevance and usefulness; if no, discard
   2. Proper trigger mechanisms are being used
   3. Contingency plan(s) can effectively handle current contingencies
   4. There is a need for additional plans

Exhibit 12 (cont'd)

Contingency Planning

5. Can incorporate contingency plan(s) or results as part of strategic planning. One instance to do so is when trigger mechanism(s) become well enough understood and predictable to be included in "Influence Database"

NOTE: Contingency plans are developed for situations of high risk with low probability of occurring. The bottom line is to have the fewest number which effectively address those issues deemed outside the strategic planning process. Over time, incorporate more and more contingency plans within strategic plans.

Exhibit 13

Reformulation of the Strategic Plan

Steps

A. Assess controls and control procedure to ensure obtaning proper results

B. Make any corrections or alterations to strategic actions, practices or projects to sustain positive outcomes

C. Define, in advance, the end of the strategic planning cycle. At this time, evaluate and update the Influence Database.

D. Discover new strategic issues using the Influence Database

E. Combine unresolved strategic issues from last "planning cycle" with new strategic issues

F. Verify through consensus and analysis that strategic issue set is indeed the appropriate one for the firm to deal with at this stage of its evolution. Make any modifications as necessary.

G. Formulate and execute new strategic plan of evolution. Finally, an example of the outcome of using Exhibit 1 is found in the strategic plan of Exhibit 14.

CREATIVITY

Once strategic planning is defined, processed, used and acted upon, questions of improving, enriching, extending or deepening its influence are raised. One response to such questions is to use creativity to explore whether and how strategic planning should be modified. Exhibit 15 shows the creative process. One myth about creativity is that it takes a long time to occur and does occur, at best, at infrequent intervals. As this paper demonstrates, by providing a corporate environment conducive to strategic planning, creativity can become the "lungs" of the planning efforts. In addition, other direct spinoff effects of creativity can be summarized as analytical and behavioral (see Exhibit 16). Together, these impacts offer the entrepreneur the early warning system for expeditiously sensing concerns of interest requiring timely responses. Thus, the creative dimension can open up many other possibilities not heretofore seen or thought doable.

INNOVATION

This conference seeks not merely to address strategic planning and creativity, but innovation also. This section will show how innovation can be enhanced through using both of the other techniques. Innovation is normally thought of as a process for bringing feasible ideas to the consumer. These ideas usually take the form of a product, service, or combination. In addition, the two procedures which intertwine to bring innovations about are research and development as well as marketing.

Innovations vary in terms of the degree of change introduced with the innovated item. There are three kinds of change:

1. adaptive innovation are slight modifications of existing items. They represent the least amount of item, R & D expenditures and marketing plan change (Example: new varieties of spaghetti sauce).

2. functional innovations supply a new method to perform an old function (Example: franchised legal or accounting services).

3. fundamental innovations incorporate new ideas to perform new functions (Examples: laser unblocking of arteries or entrepreneurial ventures for existing companies).

While fundamental innovations have the highest risk, those which succeed have large positive impact on the economy and the firm's profits.

Exhibit 14

Example of a Strategic Plan

Company Name: Inventcon, Inc.

Company Purpose: Design and development of computer software to solve various inventory control problems.

Strategic Issues:

- -- Market demand diminishing for this type of software.
- -- Many companies developing such software in-house.
- -- Many companies requiring such software are modifying data processing functions.
- -- Compatability of software with existing computer hardware and software in each firm.
- -- Competition requires multiple advertising media and flexible pricing structure.

Alternatives to Resolve Strategic Issues:

1. Target market segments that have not been reached before.
2. Take more personal approach to marketing.
3. Ensure that software can be made to run on client's computer equipment.
4. Offer additional software services such as computer, system design, telecommunications requirement analysis, or hardware/software selection.
5. Expand inventory features offered in software.
6. Team up with manufacturer of computer hardware to sell Inventcon software.

Exhibit 14 (cont'd)

Example of a Strategic Plan

Decision Criteria:

* Time to Implement
* Cost to Implement
* Compatability with Firm's Purpose
* Previous Applications of Alternative
* Degree to which status quo can be returned to if alternative is not successful

Choice:

+ Alternatives 2, 3, and 5 are picked

Implementation:

a. Discover previous clients or potential clients who might need services.

b. Contact each client to discuss future needs. Gain admission by taking a survey of inventory software requirements.

c. Upgrade software capabilities by having modules ready to run on client's hardware.

d. Increase number of rformance is what is expect inventory software needs are met in comprehensive fashion.

Monitoring, Control, and Review:

% Assess marketing effort after three months. If performance is not what is expected (three new clients) then expand outreach activity. If performance is what is expected, ensure inventory software needs are met in comprehensive fashion.

% Solve any compatability problems with client's computer system.

% Ensure rigorous testing of new software modules is done before being made available to clients.

% Review all activities after 180 days. Assess whether technical and marketing performance is what is targeted. If so, continue market penetration and software upgrade. If not, carefully define areas of improvement, and carry out strategic planning process to reflect these changes.

Exhibit 15

Creativity During the Strategic Planning Process

Steps:

I.	Preparation:	Recognition of the concern to be addressed. Agreement on what resources are required, what procedure will be used, and which persons will be involved.
II.	Clarification:	Concern is described in detail including background, probable causes, attempts at resolution, prior use, impacts of other concerns and on other concerns, and plausible courses of action to be taken now.
III.	Gestation:	An incubation period follows in which the concern is deliberately not discussed, analyzed or dealt with.
IV.	Insight:	Flashes of inspiration can occur before the end of the previous step. If not, then return to concern and rethink what its definition is and how to handle it. New relationships or perspectives can emerge herein.
V.	Verification:	The arrived-at description of the concern is measured against past experience, collected information and others' ideas to sustain its validity.
VI.	Application:	The means to take care of the concern are now put into practice.

Exhibit 16

Impacts of Creativity on Strategic Planning

Analytical

- Discover new perspective about thinking
- Obtain more efficient process of analysis
- Have sharper definition of information requirements
- Generate larger range of options for present or future directions
- Apply better means of control
- Resolve gaps between firm definition and its operations sooner than later
- Integrate firm activities better
- Able to quickly and effectively respond to contingencies
- Develop capacity for spawning new ventures

Behavioral

- Provide ability for each firm member to learn strategic planning
- Facilitate individual/group interface and interaction
- Stimulate coperative rather than cooptive teamwork
- Increase frequency and intensity of feedback
- Discover how to dissolve resistance to change
- Integrate strategic planning as key facet of corporate culture
- Interact better with advice givers
- Balance workstyle with lifestyle
- Redefine organizational relationships and career paths

The process of innovation is shown in Exhibit 17. This process is generic and flexible to suit the particular innovation situation. Yet whichever stages are employed, the firm members reevaluate on an ongoing basis the technical, financial, production and market suitability of the emerging item. Further, once an item enters the marketplace, it can follow a "lifecycle" similar to the stages mentioned in Exhibit 7.

However, the time to complete an innovation process is decreasing while, at the same time, more fundamental innovations are being introduced. Thus, using strategic planning in conjunction with the creative process, innovation can be improved in the ways shown in Exhibit 18.

SPECIFIC FIRM SITUATION

Two years ago, I was called in to do some consulting with an up and coming radar manufacturing company. When I entered the corporate environment there was total disarray. Each person seemed to be doing his or her own thing. Although the majority of the sixty person firm were highly technically trained, there were no overall directions the company was pursuing. Many people liked working there because of the freedom to be spontaneous and creative. Further, the radar systems had been tauted by customers as some of the best available anywhere.

The current CEO explained in an interview that the company was founded by four engineers from three companies, two of these firms being current competitors. All the founders worked well together but no one wanted to structure anything more than a free-flowing internal environment. Thus, the predicament was that while new products were successfully being introduced, the cash reserves were being depleted and the profit per innovation was decreasing.

My sessions with all members -- together and in mixed groups of executives, engineers and support staff -- uncovered three large problem areas:

- o first, only one market is being tapped - the federal government
- o second, the firm is trying to compete with its competitors directly
- o third, the products provided are more than the customer requests

In subsequent rap and brainstorm sessions, we came up with the following suggestions to handle the concerns:

Exhibit 17

Process of Innovation

Stage	Description
Exploration	Search for and collect ideas for potential development through assessing market needs and /or basic R & D.
Screening	Evaluate set of ideas to eliminate unmarketable ones
Business Analysis	Extract end-use concept from idea and do detailed assessment of market potential
Development	Design and formulate actual end-item and produce marketing plan
Testing	Refine technical characteristics of item through control means as well as introduce item to selected consumers or markets
Commercialization	Introduce item into total marketplace and have full-scale production
Diffusion	Item is adopted by consumers and is modified to reflect changing demand (as necessary)

Exhibit 18

Ways to Enhance the Innovation Process Through Strategic Planning Combined with Creativity

* Upgrade effective problem-solving through use of project management techniques

* Develop early warning system for identifying possible innovations to obtain competitive edge in introducing new items

* Reduce risk through rigorous but sensitive evaluation scheme for item throughout innovation process

* Discover ways of more accurately matching item with market demand

* Allow for spinoff ideas at any stage of innovation

* Involve many firm members through feedback, group brainstorm sessions and solicitation of ideas

* Provide options for improving the innovation activity and transferring it to other firm functions

* Eliminate ideas which do not reflect the firm's capabilities or its definition

- diversify the product line to suite a wider range of markets

- give the customer what is required, but do not overdesign

- worry less about competitors and be more concerned with customer satisfaction and referrals

To effectively carry out all three action directives, the membership agreed that a framework for identifying tasks, controls and future concerns was needed; i.e. strategic planning. Today the company's sales have increased by 200%, its staff has increased by a third and it has an order backlog of eighteen months.

IMPLICATIONS OF STRATEGIC PLANNING FOR THE ENTREPRENEUR

Having completed descriptions of the strategic planning, creativity and innovation processes and having demonstrated them "at work" in an emerging firm, the next and final concern of this paper is to relate the above to ongoing and future entrepreneurial ventures. Exhibit 19 depicts the salient qualities and skills which successful entrepreneurs possess. The processes previously described can assist would-be or existing entrepreneurs most directly in the following areas:

- learning from failure. The knee-jerk cultural norm about failure is that it is bad, wrong, or counter-productive. As laid out in Exhibit 20, failure is not something we seek, but if it should occur in spite of our best efforts, it can be a golden opportunity to thoroughly understand the business incident(s) which caused it. Next, grab hold of one or more tools given herein and use them to turn the failure experience into a strength for subsequent business actions. Two other comments: first, allow failure to be value-free rather than value-laden. Second, encourage dialogue on how to spot failing situations sooner as well as gain more from them which other firm members can use.

- growing. All companies want to grow. Many firms do so with little internal controls or direction. From the strategic planning experience of this paper, a growth plan can be straight-forwardly articulated and immediately applied to define, evaluate and accomplish a rate of growth which will sustain the

Exhibit 19

Characteristics of Entrepreneurs

I. Qualities. They are:
  A. Self-Motivated. Willing to work long hours to see business succeed.

  B. Persistent. Have perserverance to build a business and see it grow.

  C. Self-Confident. Belief in being masters of their fate. Compete against self-imposed standards.

  D. Self-Reliant. Actively seek situations in which they are personally responsible for success or failure.

  E. Positive Yet Realistic. Are optimistic, creative and innovative within recognized limits.

  F. Personable. Get along well with people and are interested in motivating them.

  G. Innovative. Desire to continually respond to changing conditions in creative manner.

  H. Ethical. Abide by consistent, fair and honest guidelines in all business transactions.

II. Skills. They can:
  A. Solve Problems. Consider problems as windows of opportunity rather than barriers to success. Know how to follow through with solution.

  B. Take Risks. Calculate and select those opportunities with moderate risk/reward ratio.

  C. Understand Profit. View as prime indicator of business success, needed to build a business, but not an end in itself.

  D. Set Clear Goals. Direct and plan business activities.

  E. Do Contingency Planning. Develop flexible responses to changing conditions.

  F. Tolerate Ambiguity. Able to live with uncertainty concerning job security and competitor's activities.

  G. Learn by Mistakes. Regard failure as a means to better understand a situation, and to avoid a similar situation in the future.

  H. Use Feedback. Continually seek information about their work from business associates, customers, professionals, friends, etc. Use the received input to improve business activities.

  I. Communicate. Read, write and speak well.

  J. Develop Outside Interests. Have ways to relax and enjoy leisure to put aside continual business involvement.

Exhibit 20

Learning from Failure

First Step: Acknowledgement

- Describe the situation
- Explain what went wrong
- Discuss current status based on the situation
- Articulate what insights were gained from doing and evaluating the situation

Second Step: Prevention

- Give various means to stop the situation from failing
- Demonstrate how the recent situation could have succeeded
- Present a method for handling situations in the future to either: turn them around or let them fail early
- Use strategic or contingency planning to identify situations which need be watched closely

Third Step: Integration

- Provide incentives to have members show how they learned from failed situations
- Encourage discussion of failure and ways to remedy it
- Do not penalize failure for its own sake
- Have topic of failure be included in training activities and growth plan

firm's viability. Being creative can enhance this activity further through specifying options which use resources in ways not previously thought possible. Further, with innovation also occurring, growth can be carefully tailored to the elements required to carry it through. Exhibit 21 shows how planning can strengthen the growth new ventures want to achieve.

- coping with change. The one constant that is guaranteed all entrepreneurial experiences is that change will occur. So the issue becomes how well entrepreneurs can adapt and respond to it. Exhibit 22 provides some insights and actions to successfully integrate change within the emerging environment of new or existing firms. As shown, effective change occurs when there is a balance of attitude and response, amount and time to handle it, short-term action and longer term integration, since the litmus test of a firm's survival is how well change is recognized and dealt with. For it is change which stimulates and governs the quality and quantity of applying strategic planning, creativity and innovation to progressing a start-up to longer range fulfillment of the firm's intentions.

Exhibit 21

Defining a Growth Plan

I. Strategic Variables

- A. Current Activities
- B. New Activities
- C. Quality
- D. Performance

II. Strategic Issues and Alternatives

- A. What rate of growth is desirable?
- B. When should growth occur?
- C. How will growth happen?
- D. What impacts are anticipated from the growth chosen?
- E. What contingencies need be taken into account?

III. Decision Criteria

- A. Ability to try growth alternative on limited basis first
- B. Compatibility with operational philosophy
- C. Time to implement
- D. Resources and people
- E. Previous successes or failure with alternative

IV. Implementation

- A. Control measures to monitor growth
- B. Growth vs. achievement at this stage - match or mismatch?
- C. Effects on influence data base

Exhibit 22

Coping with Change

I. Definition -- ability to adjust, modify or adapt to different conditions

II. Process

- A. Acknowledge present situation
- B. Identify factors which are varying
- C. Assess impacts of factors on situation
- D. Understand responses required to continue or increase viability of situation
- E. Implement and monitor responses

III. Attitude

- A. Positive
  - 1. Fact of Life
  - 2. Fun
  - 3. Challenging
  - 4. Open to it
  - 5. Gives personal growth
- B. Negative
  - 1. Rejecting
  - 2. Ill-informed
  - 3. Uncomfortable
  - 4. Mistrust
  - 5. See no benefit

IV. Impacts

- A. Negative
  - 1. Stress
  - 2. Resistance to change
  - 3. Conflict
  - 4. Alienation
  - 5. Conforming to group norm
- B. Positive
  - 1. Increased competition
  - 2. Better operated firm
  - 3. Higher quality communication
  - 4. Successful use of strategic planning
  - 5. More responsive to members' and consumers' needs

V. Means to overcome negative impacts

- A. Practice in open communication
- B. Acknowledging specific impacts and addressing ways to mitigate them
- C. Greater participation in strategic planning
- D. Incentives to discover potential changes early
- E. Emphasis on refining means to handle changes

APPENDIXES

A. Agenda

2ND CREATIVITY, INNOVATION AND ENTREPRENEURSHIP SYMPOSIUM

GEORGE WASHINGTON UNIVERSITY
CLOYD HECK MARVIN CENTER
21st & H STREETS N.W.
THIRD & FOURTH FLOORS

AGENDA

THURSDAY- MARCH 21, 1985

8:00 - 9:00 a.m. REGISTRATION

9:00 - 9:15 a.m. WELCOME
DEAN NORMA M. LOESER - George Washington University School of Government and Business Administration

9:15 - 9:45 a.m. KEYNOTE ADDRESS
DR. GORDON L. LIPPITT - President, Project Associates, Inc.

9:45 - 10:00 a.m. COFFEE BREAK

10:00 - 11:00 a.m. WORKSHOP SERIES I:

A) Public-Private Partnerships

Creative examples of public-private ventures that result in private profits and public returns.

John Cox - Small Business Administration
Rick Hearld - Bell Atlantic
David Johnston - Intermatrix USA

B) Entrepreneurial Effect on the Economy

Historical examination of the effect of entrepreneurship on economic growth.

Carl Crego - CRC Consulting Group
Tom Gray - Small Business Administration
Benny Gilad - Rutgers University

C) An Examination of High Technology Innovations and Exporting Potential of Entrepreneurs.

Examine and discuss how to stimulate high tech innovations into marketable products. Also, characteristics of entrepreneurs as they relate to the exporting of goods and services.

Dave Frame - George Washington University
Mark Weaver - University of Alabama

11:05 - 12:05p.m. WORKSHOP SERIES II

A) Small Business Incubators: A Creative Tool for Local Development

A review of various examples of this innovative tool for generating jobs and fostering small business development.

Loren Schultz - Technology Centers International
Carol Eliason - American Association of Community and Junior Colleges
Dr. Donald Donato - President, Niagara Community College
DR. Anthony Zeiss - Vice President Pueblo Community College
Dr. Jerry Van Dyke - Provost, Cascade Campus Portland Community College

B) Intrapreneurship: Innovative Ways of Motivating Employees

Techniques for generating creative business environments.

Erik Winslow - George Washington University
Reid Daltzman- President, Learning to Learn Software, Inc.
Michael London - President, The London Companies

C) Characteristics of Entrepreneurs

Review and discussion of recent studies and examinations into typing potential entrepreneurs based on their attitudes, perceptions and values.

Lloyd Fernald - University of Central Florida
Jim Martin - Pennsylvania State University
George Kliendorfer - Pennsylvania State University
William Brashers - Pennsylvania State University

12:15- 1:45 p.m. LUNCH Speakers

GEORGE TROY, PRESIDENT
COMPUTER AND CONSULTING SERVICES
CONTROL DATA BUSINESS ADVISORS, INC.

JAMES C. SANDERS- ADMINISTRATOR,
U.S. SMALL BUSINESS ADMINISTRATION

1:50- 2:50 p.m. WORKSHOP SERIES III

A) Entrepreneurial Education Entrepreneurial Education

Various programs and efforts to stimulate entrepreneurship by fostering a positive learning climate.

Cathy Ashmore - National Center for Research in Vocational Education
John Bebris - National Center for Research in Vocational Education
Gerry Feigen - Small Business Administration
Leslie P. Hitch - The Small Business Foundation of America, Inc.

B We Did It - So Can You

Representatives of major corporations discuss their growth from small businesses and review how they have maintained an entrepreneurial corporate environments.

John Finley - Federal Express
Gordon Engdahl - 3M Company

C Warning Signals for Entrepreneurs

A discussion ofthe pitfalls and strategies for entrepreneurial businesses.

Brian Ford - Arthur Young

2:50 -
3:05 p.m. COFFEE BREAK

3:05 -
4:05 p.m. WORKSHOP SERIES IV

A) How to Stimulate High Technology Innovations

Examining and discussing how to stimulate high tech innovations into marketable products. Also, what environmental conditions are essential to fostering creativity.

Bob Rosenfeld - Director, Research Labs, Eastman Kodak

B) Public - Private Creativity

Programs and activities focusing on how to create and stimulate creativity in the public and private sectors.

Teresa Amabile - Brandeis University
Susan Sensabaugh - Center for Creative Leadership

C) Resources for New Product Development

Robert Dyer - George Washington University
George Morning - Small Business Administration

4:30 -
5:30 p.m. RECEPTION -

FRIDAY, MARCH 22, 1985

9:00-
9:15 a.m. GENERAL ANNOUNCEMENTS
Dr. Bruce G. Whiting, Kutztown University of Pennsylvania

9:15 -
9:30 a.m. OPENING SESSION
Arthur Lipper III, Chairman of the Board, Venture Magazine

9:35 -
10:00 a.m. Frank Swain, Chief Counsel, Office of Advocacy - U.S. Small Business Administration

9:45-
10:00 a.m. COFFEE BREAK

10:00 -
11:00 a.m. WORKSHOP SERIES V

A) Public Private Creativity

Programs and activities focusing on how to create and stimulate creativity in the public and private sectors.

Dennis Coates - National Defense University
Daniel Chapla - National Defense University
Harold McAlindon - President, Development Associates

B) Venture Capital: Fuel for Technological Innovation

An examination of the sources and uses of venture capital in the development of business startups and innovative projects.

Jeff Timmons - Babson College

C) State and Local Initiatives in Economic Development

Creative projects designed to stimulate local development and involve new players;including international trade promotions,revolving loan funds and enterprise zones.

Walter Plosila - Commonwealth of Pennsylvania
Bob Kaufman - Baltimore Economic Development Corporation

11:05 -
12:05p.m. **WORKSHOP SERIES VI**

A) Creativity and Strategic Business Planning

How to apply creativity to formulating strategic business plans. Examining the usefulness of adding structure to the creative and innovative entrepreneur.

Robert Ronstadt - Babson College
Steve Stryker - Univ. District of Columbia

B) Characteristics of Entrepreneurs

Review and discussion of recent studies and examinations into typing potential entrepreneurs based on their attitudes, perceptions and values.

William Dunkelberg - National Federation of Independent Business and Purdue University
George T. Solomon - U.S. Small Business Administration and George Washington University

C) Small Business Incubators: A Creative Tool for Local Development

A review of various examples of this innovative tool for generating jobs and fostering small business development.

Loren Schultz - Technology Centers International
Carol Eliason - American Association of Community and Junior Colleges
Dr. Donald Donato - President, Niagara Community College
DR. Anthony Zeiss - Vice President Pueblo Community College
Dr. Jerry Van Dyke - Provost, Cascade Campus Portland Community College

12:05 -
1:30 p.m. **LUNCH** - Speaker
Dr. Frederick Herzberg
Distinguished University Professor University of Utah

2:00 p.m. SYMPOSIUM ENDS

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